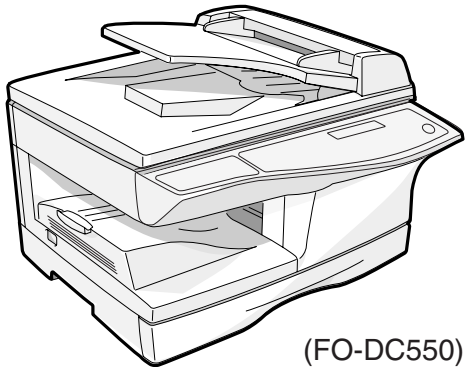
SHARP SERVICE MANUAL

CODE : 00ZFODC550A1E



(FO-DC550)

DIGITAL MULTIFUNCTIONAL SYSTEM

MODEL FO-DC550

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Parts marked with "⚠" are important for maintaining the safety of the machine. Be sure to replace these parts with the replacement parts specified to maintain the safety and performance of the machine.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CAUTION

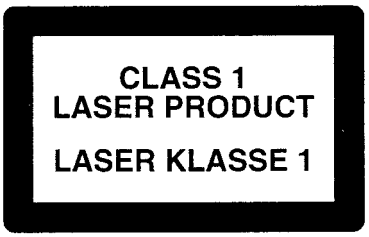
This product is a class 1 laser product that complies with 21CFR 1040 of the CDRH standard and IEC825. This means that this machine does not produce hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eye's retina, there is the danger of spot damage to the retina.

The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

1) When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not as individual parts.
2) Do not look into the machine with the main switch turned on after removing the developer unit, toner cartridge, and drum cartridge.
3) Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
4) The middle frame contains the safety interlock switch.

   Do not defeat the safety interlock by inserting wedges or other items into the switch slot.



LASER WAVE – LENGTH : 770 – 795nm
Pulse times : 10.24µsec
Out put power : 0.15mW ± 0.01mW

CAUTION

INVISIBLE LASER RADIATION,
WHEN OPEN AND INTERLOCKS DEFEATED.
AVOID EXPOSURE TO BEAM.

VORSICHT

UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GEÖFFNET UND
SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT.
NICHT DEM STRAHL AUSSETZEN.

VARO !

AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ
KATSO SÄTEESEEN.

ADVARSEL

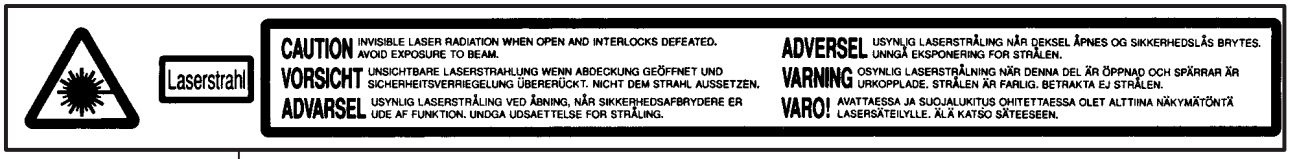
USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR
SIKKERHEDSBRYDERE ER UDE AF
FUNKTION. UNDGÅ UDSAETTELSE FOR
STRÅLNING.

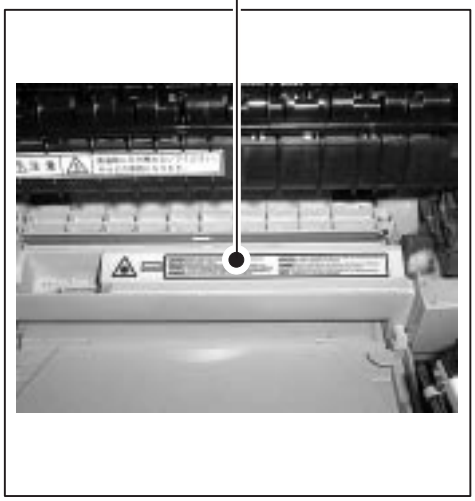
VARNING !

OSYNLIG LASERSTRÅLNING NÄR DENNA DEL
ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
BETRAKTA EJ STRÅLEN. – STRÅLEN ÄR
FARLIG.

At the production line, the output power of the scanner unit is adjusted to 0.57 MILLI-WATT PLUS 20 PCTS and is maintained constant by the operation of the Automatic Power Control (APC). Even if the APC circuit fails in operation for some reason, the maximum output power will only be 15 MILLI-WATT 0.1 MICRO-SEC. Giving and accessible emission level of 42 MICRO-WATT which is still-less than the limit of CLASS-1 laser product.

Caution
This product contains a low power laser device. To ensure continued safety do not remove any cover or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.


Laserstrahl
CAUTION INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERERÜCKT. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STRÅLING.
ADVERSEL USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARNING OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG. BETRAKTA EJ STRÅLEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.



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[1] GENERAL

1. Major functions

Configurations

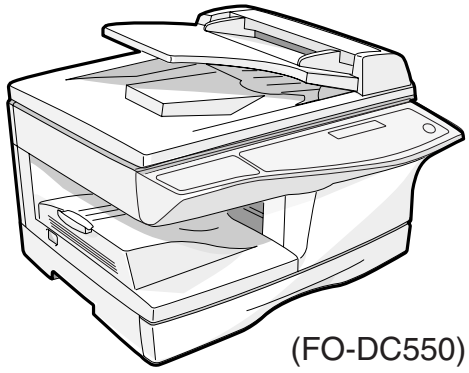
Item / Model	CPM / PPM		SB/ MB	2 Tray	SPF	R-SPF	Color Scanner (push)	GDI printer	SPLC	E-SORT	Duplex	Shifter	FAX	Sharp desk	IEEE 1284	USB	RJ45	External NIC
	LT	A4																
FO-DC550	16	15	MB	Opt	×	❍	❍	×	❍	❍	❍	❍	❍	❍	❍	❍ (2.0)	×	Opt

Descriptions of items

CPM:	Copy speed (Copies Per Minute)
SB/MB:	SB = Manual feed single bypass, MB = Manual feed multi bypass
2 tray:	Second cassette unit
SPF:	Original feed unit
R-SPF:	Duplex original feed unit
Color scanner:	Color scanner function
GDI printer:	GDI printer function with USB
SPLC:	SPLC printer function
E-SORT:	Electrical sort
Duplex:	Auto duplex copy function
Shifter:	Job separator function
FAX:	FAX function
Sharpdesk:	Scanner utilities
IEEE1284:	Interface port (parallel)
USB:	Interface port (USB)
RJ45:	Interface port (Network)
External NIC:	AR-NB2N

Descriptions of table

❍: Standard provision
×: No function or no option available
Opt: Option



(FO-DC550)

2. Note for servicing and handling

When the main unit power is repeatedly turned OFF/ON rapidly (for about 1sec), the IC (OA982) on the MCU PWB may malfunction to cause an error (E1-00 Communication error), which does not boot the machine. In case of this error, the blank display is kept for several tens seconds and then "E1-00" is displayed on the panel display.

<Countermeasure>

Turn off the power and keep it for more than 10sec. Then turn on the power.

When the machine is booted.: There is no problem in the MCU PWB.

When the machine is not booted.: The MCU PWB trouble

[2] SPECIFICATIONS

1. Basic specifications

Item		
Type	Desktop	
Copy system	Dry, electrostatic	
Segment (class)	Digital personal copier	
Copier dimensions	20.4"(W) x 19.8"(D) x 15.0"(H) (518mm(W) x 503mm(D) x 380mm(H))	
Weight (Approximately)	44.1lbs.(20.0Kg)	TD and drum cartridges included

2. Operation specifications

Section, item			Details	
Paper feed section	Paper feed system			1 tray (250 sheets) + multi bypass (50 sheets)
	AB system	Tray paper feed section	Paper size	A4, B5, A5
			Paper weight	56 - 80g/m^2 (15 - 21 lbs.)
			Paper feed capacity	250 sheets
			Kinds	Standard paper, specified paper, recycled paper
			Remark	User adjustment of front paper guide available
		Multi bypass paper feed section	Paper size	A4, B5, A5, B6, A6 (Post card), 16K (Landscape)
			Paper weight	52 - 128g/m^2 (14 - 34.5 lbs.)
			Paper feed capacity	50 sheets
			Kinds	Standard paper, specified paper, recycled paper, envelope, OHP, Label (Single copy)
			Remark	User adjustment of side paper guide available
	Inch system	Tray paper feed section	Paper size	8-1/2" x 14", 8-1/2 x 11", 8-1/2" x 5-1/2" (Landscape)
			Paper weight	15 - 21 lbs.
			Paper feed capacity	250 sheets
			Kinds	Standard paper, specified paper, recycled paper
			Remark	User adjustment of front paper guide available
		Multi bypass paper feed section	Paper size	8-1/2" x 14", 8-1/2 x 11", 8-1/2" x 5-1/2", 3-1/2" x 5-1/2" (Landscape)
			Paper weight	14 - 34.5 lbs.
			Paper feed capacity	50 sheets
			Kinds	Standard paper, specified paper, recycled paper, OHP, Label, Envelop (Single copy)
			Remark	User adjustment of side paper guide available
Paper exit section		Exit way		Face down
		Capacity of output tray		200 sheets
Originals		Original set		Center Registration (left edge)
		Max. original size		8-1/2" x 14"
		Original kinds		sheet, book
		Original size detection		None
Optical section	Scanning section	Scanning system		3 CCDs (RGB) sensor scanning by lighting white lamp
		CCD sensor	Resolution	600 dpi
		Lighting lamp	Type	CCFL
			Voltage	560Vrms
			Power consumption	2.8W
		Output data		R, G, B 1 or 8 bits/pixel / A/D 16bit
	Writing section	Writing system		Writing to OPC drum by the semiconductor laser
		Laser unit	Resolution	600 dpi
Image forming		Photoconductor	type	OPC (30ø)
			Life	18k
		Charger	Charging system	Saw -tooth charging with a grid, / (-) scorotron discharge
			Transfer system	(+) DC scorotron system
			Separation system	(-) DC scorotron system
		Developing	Developing system	Dry, 2-component magnetic brush development system
		Cleaning	Cleaning system	Counter blade system (Counter to rotation)

Section, item		Details	
Fusing section	Fusing system		Heat roller system
	Upper heat roller	type	Teflon roller
	Lower heat roller	type	Silicon rubber roller
	Heater lamp	type	Halogen lamp
		Voltage	120V
		Power consumption	800W
Electrical section	Power source	Voltage	120V
		Frequency	60Hz
		Rated current	8A
	Power consumption	Max.	Less than 1000W
		Average (during copying)	350 Wh/H *1)
		Average (stand-by)	86Wh/H *1)
		Pre-heat mode	25Wh/H *1)
		Auto power shut-off mode	8.8Wh/H *1)

*1) May fluctuate due to environmental conditions and the input voltage.

3. Copy performance

Section, item			Details	
Copy magnification		Fixed magnification ratios		4 Reduction + 3 Enlargement (AB system : 25, 50, 70, 86, 100, 141, 200, 400%) (Inch system : 25, 50, 64, 78, 100, 129, 200, 400%)
		Zooming magnification ratios		OC: 25 - 400%, SPF/RSPF: 50 - 200% (376 steps in 1% increments)
Manual steps (text, photo)				5 steps
Copy speed		First copy time	Tray paper feed	9.6 sec. (Pre-heat mode: 25 sec. / Auto power-shut-off mode: 40 sec.) A4 or Letter/100%/Auto Exposure
	AB system A4 (Landscape)	Copy speed (CPM)	Same size	15
			Enlargement	15
			Reduction	15
	AB system B5 (Landscape)	Copy speed (CPM)	Same size	15
			Enlargement	15
			Reduction	15
	Inch system 8-1/2" x 14" (Landscape)	Copy speed (CPM)	Same size	12
			Enlargement	12
			Reduction	12
	Inch system 8-1/2" x 11" (Landscape)	Copy speed (CPM)	Same size	16
			Enlargement	16
			Reduction	16
Max. continuous copy quantity				99
Void		Void area	leading edge	1 - 4mm
			Trailing edge	4mm or less, 6mm or less (Duplex copying/both image)
			Side void area	0.5mm or more (per side) 4.5mm or less (total of both sides)
		Image loss	leading edge	Same size: 3.0mm or less (OC) / 4.0mm or less (SPF/R-SPF/Duplex) Enlarge: 1.5mm or less (OC) / 3.0mm or less (SPF/R-SPF/Duplex) Reduction (50%): 6.0mm or less (OC) / 8.0mm or less (SPF/R-SPF/Duplex)
Warm-up time				0 sec.
Power save mode reset time				0 sec.
Paper jam recovery time				0 sec.

4. SPLC printer

Print speed	Max. 15ppm (A4 / with ROPM) / 16ppm (Letter / with ROPM)
First print time	9.6 sec. (without data transfer time)
Duplex	Yes
ROPM	Yes
CPU	None
Memory	Share the memory with E-SORT function
Interface	IEEE1284 / USB 2.0
Network	External NIC (Option: AR-NB2N)
Emulation	SPLC (JBIG GDI), Option: PCL/PS (Option) (AR-NB2N)
MIB support	Yes (with AR-NB2N)
Resolution	600dpi *1
Supported OS	Win 95 / 98 / Me / NT 4.0 / 2000 / XP
WHQL support	Yes *2
Application	Status window

*1: Engine Resolution

*2: Running change

5. Scan function

Type	Flat Bed Color Scanner
Scanning system	Document glass / RSPF
Light source	3 CCDs (RGB) sensor scanning by lighting white lamp (2 pcs of CCFL)
Resolution	Optical: 600 x 1200dpi Setting range: 50 - 9600dpi (Preview resolution is fixed at 75dpi)
Originals	Sheet type / Book type
Output data	R, G, B 1 or 8 bits/pixel / A/D 16bit
Scan range	OC / RSPF: 8.5" (297mm) (L) x 14" (431mm) (W) Original position: Platen: Left center / SPF: Right center
Scan speed	OC / RSPF: Max. 2.88ms/line (Color/Gray scale), Max. 0.96 ms/line (B & W)
Protocol	TWAIN / WIA (Only XP) / STI
Support file format	RAW
Interface	USB2.0
Scanner utility	Button Manager / Sharpdesk
Scan key/lamp	Yes
Duplex scan	Yes *1
Supported OS	Win 98 / Me / 2000 / XP
Void area	No (User settable by PC)
WHQL supported	Yes *2

*1: Sharpdesk only

*2: Running change

6. RSPF

Original capacity		30 sheets (52 to 90g/m^2) (14 to 23.9 lbs.)	
Original size		A4 to A5 / 8-1/2" x 14" to 5-1/2" x 8-1/2"	
Original replacement speed		12CPM (A4/8-1/2" x 11"Landscape)	
Job speed (Tray1,Landscape)	Single copy	S to S	12CPM
		S to D	5.6CPM
		D to S	5.5CPM
		D to D	5.2CPM
	Multi copy	S to S	16CPM
		D to S	16CPM
Original placement		Face up	
Original weight		52 to 90g/m^2(14 - 23.9lbs.)	
Mixed feeding		No	
Original which cannot		Thermal papers, originals with punch holes for files, be used folded paper, transparent originals such as OHP films, stapled or clip used originals with cover up liquid used, Originals with tape sealed, originals with high level frictional coefficient such as photos or catalogs.	

7. Basic specifications (FAX section)

Large item	Middle item	Small item	Sub item	Specifications
Communication system	Electronic transmission system	Electronic transmission time		Less than 3 sec (Super G3 mode, 33600bps) Less than 7 sec (G3 ECM mode, 14400bps)
		Compression/ Extraction system		MH, MR, MMR, JBIG
		MODEM speed		33600bps - 2400bps (Automatic fall-back)
		Mutual communication		Super G3/G3
		Used line		Public switched telephone network (PSTN), Private branch exchange (PBX)
		Used line number		1 line
		Connection form		For 1 line of telephone; • FAX machine • External telephone
		ECM		Yes
Transmission functions	Transmission operation	Items which can be selected and registered by user when transmitting		• Specifying the destination number • Resolution • Density • Transmission start time • Polling receive • Cover addition setting • Send document scan system
	Auto send function			Auto send function to a predetermined telephone number
	Application send function	Chain dial		Max. 50 digits
		Rapid key dial	Registration key	One-touch key
			Number of items	Max. 18 items
			Number of digits of destination number	Max. 40 digits
			Destination registration name	Max. 20 characters
			Retrieval characters	0 - 3 characters
			Communication start speed	Max. speed: 33600bps/ High speed: 14400bps/ Middle speed: 9600bps/ Low speed: 4800bps
			International communication mode	NO/ Mode 1/ Mode 2/ Mode 3
			Transmission method	One-touch dial key
		Speed dial	Number of items	100 items (Reduction number 00 - 99)
			Number of digit of destination number	40 digits
			Destination registration name	20 characters
			Retrieval characters	0 - 3 characters
			Communication start speed	Max. speed: 33600bps/ High speed: 14400bps/ Meddle speed: 9600bps/ Low speed: 4800bps
			International communication mode	NO/ Mode 1/ Mode 2/ Mode 3
			Transmission method	Speed dial key + (00 - 99) + Start key
		Group dial	Registration key	One-touch dial key
			Number of groups which can be registered	18 items (One-touch dial + Group dial)
			Destination registration name	20 characters
			Number of stations which can be registered in one group	Max. 100 stations in one group (Max. total items which can be registered: 150 items)
			Numbers which can be registered	Destination numbers registered in one-touch dial and speed dial, 10-key dial
			Retrieval characters	0 - 3 characters
			Transmission method	Group dial key
		Address book send	Retrieval target	• Speed dial • One-touch dial • Group dial
			Retrieval key	SEARCH key
			Retrieval character	0 - 3 characters

Large item	Middle item	Small item	Sub item	Specifications
Send functions	Document scan function	Document size	Max. document width	Inch series: 8.5" AB series: 210mm
			Max. document length	500mm (Only form RSPF, with user support)
			Send document size	AB series: A4 Inch series: Letter (8.5 x 11)/Legal (8.5 x 14) (Default: Letter (8.5 x 11))
			Document size specification	Yes
		Half-tone reproduction	Half-tone	256 gradations
			Resolution selection	Manual 5 steps Standard/Fine/Super Fine/Fine + Half-tone/Super Fine + Half-tone (Default: Standard)
		Scan density select function	Density select	Light/Medium/Dark
		Scan resolution select function	Selectable image quality mode	Scan density
			Resolution select	Standard: 8dot x 3.85 line/mm Fine: 8dot x 7.7 line/mm Super Fine: 8dot x 15.4 line/mm Half-tone: Scan in 256 gradations
		Document table scan (OC send) function		Book document scan/send function from the document table (OC). In one send job, the send document size is fixed.
	Send document information adding function	Sender registration/ send function	Sender telephone number	20 digits
			Sender registration name	40 characters
		Send header function	Header display content	Sender number registered in sender registration/ Sender name/ Send date and time/ page
		Page counter function	Adding position	Top right (The right edge)
			Adding form	P. XXX (Max. 999)
		Cover adding function	Display items	• Date and time • Destination name (Max. 20 characters) • Destination number (Max. 40 digits) • Sender name (Max. 20 characters) • Sender number (Max. 20 digits) • Send quantity (3 digits) • Send message (When send message adding function is used)
		Send message adding function	Fixed message	NO MESSAGE/CONFIDENTIAL/PLS. DISTRIBUTE/ URGENT/PLS. CALL BACK/IMPORTANT
		Index function		Yes (Max. 10 kinds in printable area)
	Basic send functions	Direct send function		Yes
		Memory send function	Send form Number of items of send reservation	• Send reservation • Time specifying send • Group send • Serial broadcast Max. 52 items (excluding redial) Group send and broadcast are treated as one item.
			Operation when memory full	• Document scan stop • Memory full display → Job continuation check • Job continuation: Scanned document data are sent. • Job stop: Scanned document data are deleted. • In either case, document is held in SPF and not discharged.
		Quick online send function		Valid when memory mode is ON. Scan of send document data and send are performed together.
		Auto resend function	When busy tone detected	Redial is performed according to the setting of "Number/interval of redial when busy."
			When no response (CED/ FSK signal are not detected)	Redial is performed according to the setting of "Number/ interval of resend in communication error."
			Communication error	
		Long document send function		Supports up to 500mm. When this length is exceeded, "PAPER JAM" occurs.

Large item	Middle item	Small item	Sub item	Specifications
Send functions	Application send function	Manual send function		This function allows to switch to FAX manually when off-hook with document set.
		Time specifying send function	Available communication	Memory send, Polling, serial broadcast, serial send request
			Number of set items	Max. 5 items
			Set range	00:00 - 23:59 (Unit: 1 min)
			Day of week	8 kinds (From Monday to Sunday, and no specification)
		Group send function		A message is sent sequentially to two or more destinations registered in group dial. (Max. 52 destinations can be registered in one group.)
		Serial broadcast function	Broadcast send destination	Max. 100 items
		Duplex send function		Valid only in duplex support models. Direct send and scan from OC cannot be made.
			Send document size	A4/ Letter/ Legal size
Incoming functions system	Incoming detection function	Call signal detection function		Call bell is distinguished from net call signals to judge incoming.
		Remote select function by CNG detection		Receive is started when CNG signal is detected in standby with external telephone used.
	Application incoming function	Distinctive Ring function		Conforms to the call distinguishing function provided by the local telephone company.
			Call bell pattern	OFF/STANDARD/Pattern 1 - 5
		Incoming reject function		Incoming is rejected when remaining memory capacity is less than 7%.
		Call sound volume adjustment function	Volume select	OFF/LOW/MIDDLE/HIGH
		Alarm sound volume adjustment function	Volume select	OFF/LOW/MIDDLE/HIGH
		Key sound volume setting		Follows setting on the main unit.
		Junk FAX protection function		Junk stations are registered to be rejected.
			Number of registrations	Max. 10 items
Receive functions system	Receive function	Receive standby mode		• Auto (AUTO) • Manual (MAN.) • Answering machine (A.M.)
	Basic receive function	Auto receive function		The line is switched to FAX by detection of call signal. (receive standby mode)
			Number of calls	AUTO: 0 - 9 times (Default: 2 times)
			Tel/FAX auto select	No
			Incoming reject conditions	• During Test Command by serviceman • Insufficient memory capacity • During menu • During memory status display
		Manual receive function		Receive is manually started.
			Number of calls	0 - 9 times (Default: 0 times)
	Basic receive function	Memory receive function		Receive data are accumulated in memory, and outputted when output conditions are satisfied.
			Substitution receive function	Countermeasure against print inhibit state. • No recording paper • Recording paper jam • During copy/print job • During printing by printer • Cover open • Paper empty, size error
			Forcible memory receive function	No
			Overtake output function	No
			Print hold	Yes

Large item	Middle item	Small item	Sub item	Specifications
Receive functions system	Receive document output function	Auto reduction/ divided receive function	Auto reduction function	When the reference line number is in the specified range.
			Divided receive function	When the reference line number exceeds the specified range.
		Polling receive function (Send request function)		The remote machine must be provided with polling function. Communication is allowed with an other company machine.
		Sequential send request (Polling) communication		Polling is made to two or more specified destinations. Number of items of destination registration: Max. 100 items
		Remote send		Scanned document data in memory are sent automatically by send request from the remote machine.
			Protection function	• Check by sender number • Check by allow number
	Print system	Recording paper	Recordable size	A4/8.5 x 11/8.5 x 14
			Recording paper setting	AUTO/TRAY 1/TRAY 2 (When the option installed) (In AUTO, TRAY1 has priority.) (Default: AUTO)
			Paper feed	Paper feed by tray (Excluding multi manual feed)
			Recording paper size detection	The recording paper length is detected. If the size differs, a paper size error occurs.
			Recording paper empty detection	Detected by a paper pickup error.
		Duplex receive		Available only in the duplex function support models.
	Transfer function			No
Telephone functions system	Main unit telephone function	On-hook dial function		Yes
		Manual redial function	Max. memory digit	50 digits
			Display digits	End 20 digits
		Pause function		Yes (Fixed to 2sec)
		Pulse/Tone select function		Yes
	External telephone connection function	Select function by DTMF		Select number (1 digit) + [**] (0 - 9)
Record table system	Report list	Report output function	Report select	• TIMER LIST • ACTIVITY REPORT • TELEPHONE# LIST • GROUP LIST • PASSCODE LIST • JUNK FAX# LIST • USER PROGRAM LIST
		Recording table auto print function	Number of items	Auto print for every 50 items of send/receive total.
		Communication report list	Report select	• Send report list • Receive report list • Serial broadcast send report list • Image memory addition
			Print status select	• ALWAYS PRINTS • ERROR ONLY • NEVER PRINTS

Large item	Middle item	Small item	Sub item	Specifications
Memory functions system	Memory outline	Memory capacity	Standard memory	2MB
			Option	No
			Document quantity to be stored	A4 standard documents 120 pages
		Data storage area/ backup when service interruption (Recorded data, receive data)	Image data	Flash memory (Data are retained when the power is turned off or when the battery is exhausted.)
			Data other than image	SRAM (Data are retained when the power is turned off, but deleted when the battery is exhausted with the power OFF.)
	Treatment when memory full	Quick online	Memory full on the first page	Send cancel without call-out
			Memory full on the second or later page	The line is shut-off after sending the last page of scanned data.
		Memory send	Memory full on the first page	Send cancel
			Memory full on the second or later page	Send/Cancel is selected depending on the select menu display. Send: The line is shut off after sending the scanned data. Cancel: Cancel even scanned data.
	Memory status check function			Yes (The remaining memory capacity (%) is displayed on the LCD.)
	Memory content check function			Not-sent job is displayed on the LCD. (Cancel is possible.)
	Document jam			Error LED, LCD message are displayed.
Service functions system	Test command function			Send/receive of specified signals, commands, and image data are performed without a remote machine.
	Counter function		Communication counter	• Number of send pages • Number of receive pages • Number of output pages • Send time • Receive time
Others	Environmental functions	Auto clear		Conforms to the main unit setting. When the operation is left for 1 min or more, the display returns to the main menu.
		Auto shut -off		Conforms to the main unit setting.
	Date and time setting function			Month/ Day/ Year/ Day of week/ O'clock/ minute
	Image priority function			STANDARD/FINE/SUPER FINE
	BEEP LENGTH (Communication end sound length) setting			3SEC/1SEC/NO BEEP
	Auto summer time setting			First Sunday of April AM2:00 → 3:00, Last Sunday of October AM2:00 → 1:00 (Default: OFF)
	Multi language function			Conforms to the main unit setting.

[3] CONSUMABLE PARTS

1. Supply system table

No.	Name	Content	Life	Product name	Package
1	TD Cartridge (Black)	Toner/Developer CA with IC Chip x 1 (Toner; Net Weight 196g) (Developer; Net Weight 180g) Polyethylene Bag (UBAGF0005YSZZ) x 1	6K (5% document)	FO-55ND	5
2	Drum Cartridge	Drum Cartridge	18K	FO-55DR	5

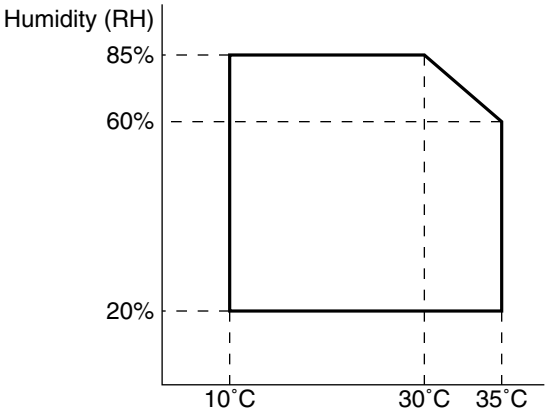
2. Environmental

The environmental conditions for assuring the copy quality and the machine operations are as follows:

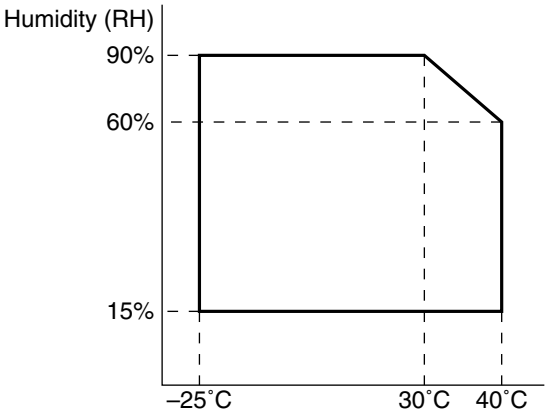
(1) Normal operating condition

Temperature:20 - 25°C
Humidity:65 ± 5%RH

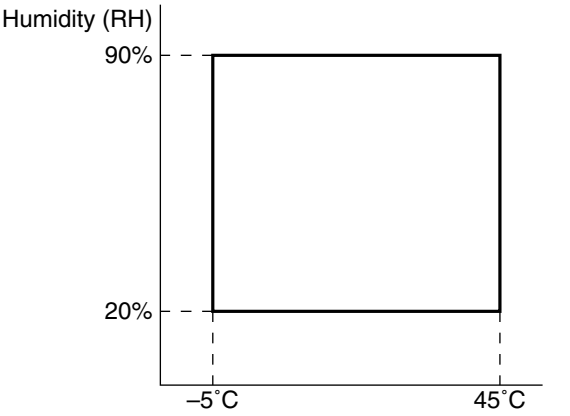
(2) Acceptable operating condition



(3) Transport condition

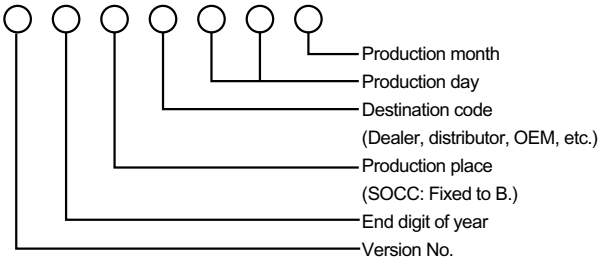


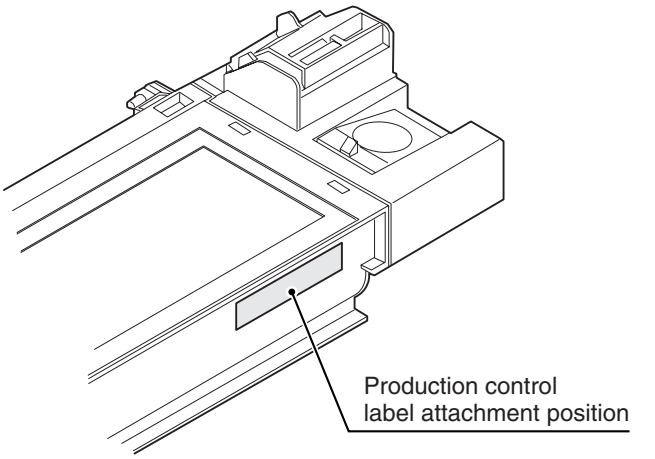
(4) Supply storage condition



3. Production control number (lot No.) identification

<Developing cartridge>



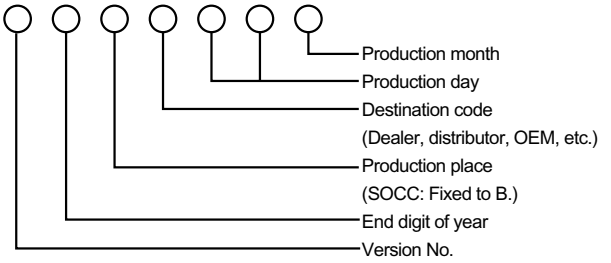


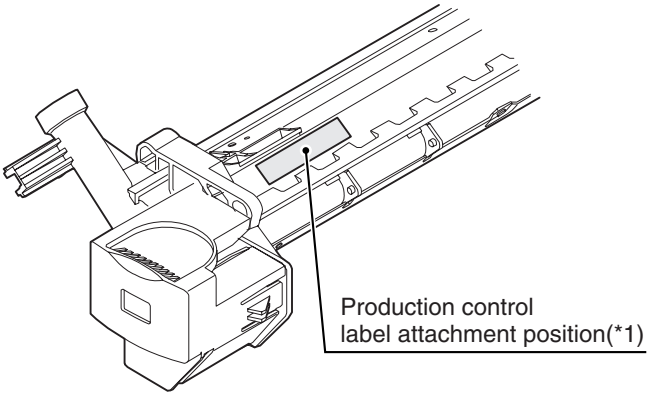
* Destination

Division		No.
EX Destination	A same pack	G
	B same pack	H
Option Destination	A	P
	B	Q

<Drum cartridge>

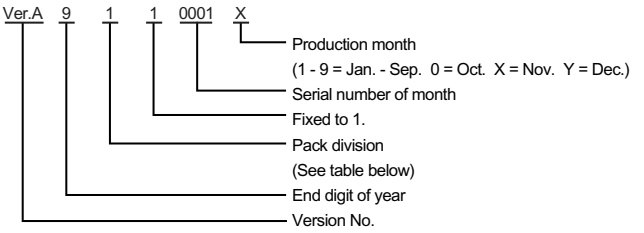
The label on the drum cartridge shows the date of production.
(SOCC production)





*1 The production control label is not attached to the cartridge of a China product.

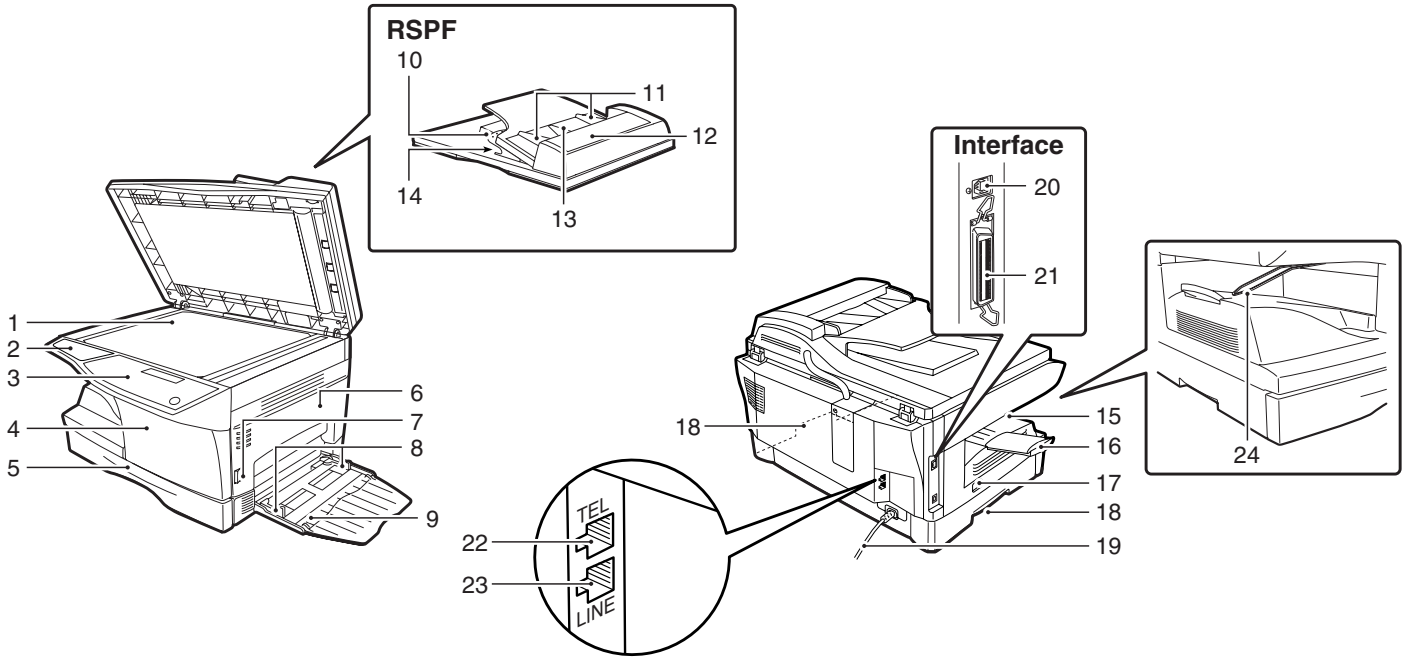
<JAPAN production>


Ver.A 9 1 1 0001 X
Production month
(1 - 9 = Jan. - Sep. 0 = Oct. X = Nov. Y = Dec.)
Serial number of month
Fixed to 1.
Pack division
(See table below)
End digit of year
Version No.

Division	No.
Ex production	1
Option	2
Same pack	3

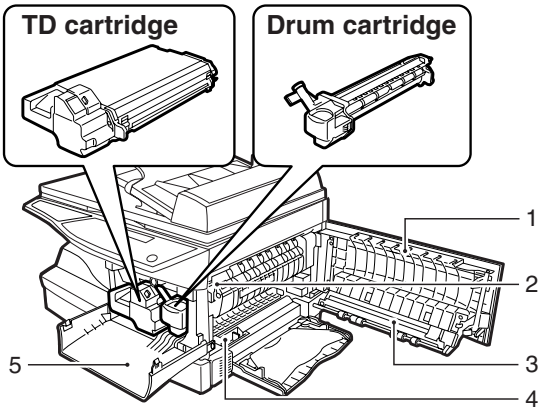
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Appearance



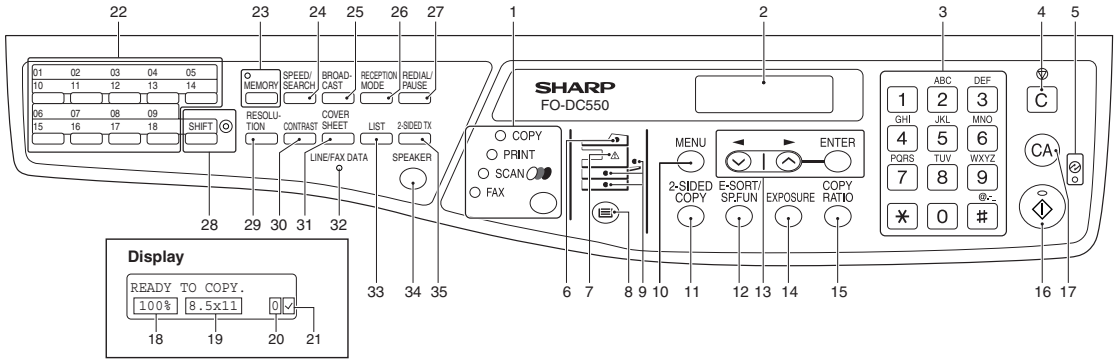
1	Document glass	2	FAX operation panel	3	Operation panel
4	Front cover	5	Paper tray	6	Side cover
7	Side cover open button	8	Bypass tray paper guides	9	Bypass tray
10	Reversing tray	11	Original guides	12	Document feeder cover
13	Document feeder tray	14	Exit area	15	Paper output tray
16	Paper output tray extension	17	Power switch	18	Handles
19	Power cord	20	USB port	21	Parallel port
22	Telephone line port	23	External telephone line port	24	Paper holding arm

2. Internal



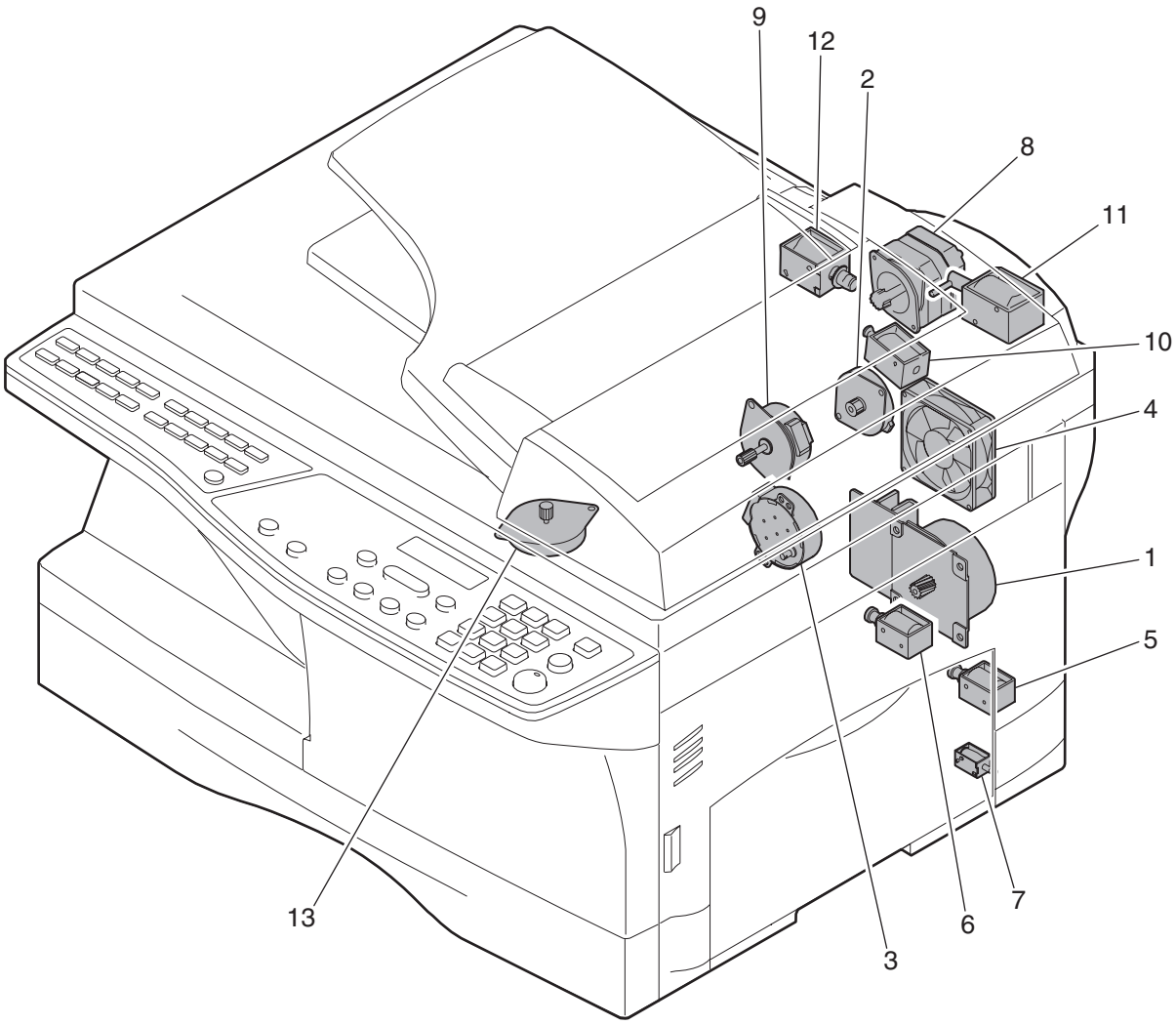
1	Side cover	2	Fusing unit release lever	3	Transfer charger
4	Charger cleaner	5	Front cover		

3. Operation panel



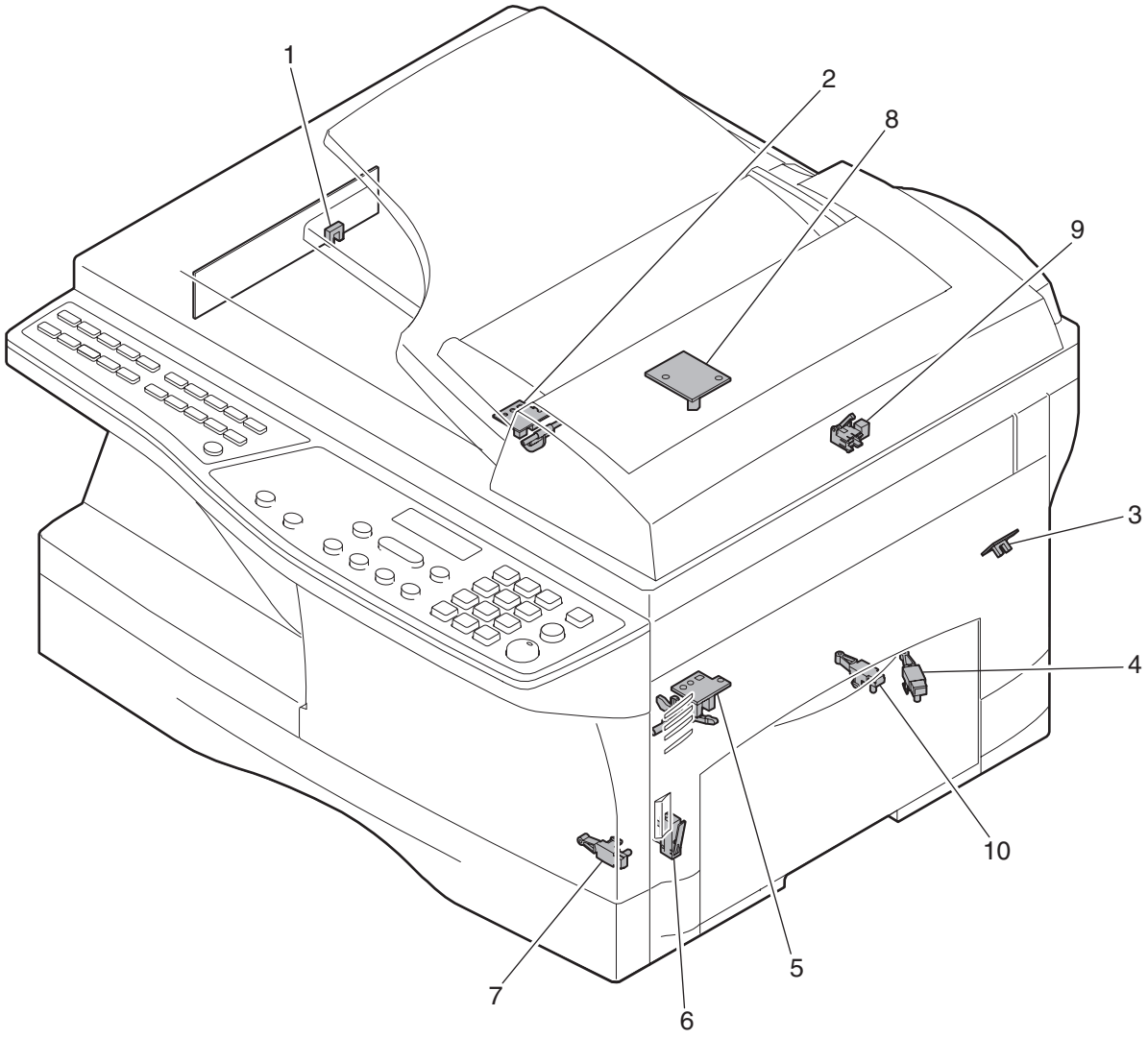
1	**[MODE SELECT] key / Mode indicators** Press this key to select the mode. The indicator of the selected mode lights (copy, printer, scanner, fax mode indicators).	2	**Display** This shows messages indicating the machine status and any problems that occur, as well as user programs and function setting menus.
3	**Numeric keys** Use these to enter the number of copies and other numerical settings. The keys can also be used to select items in function setting menus.	4	**[CLEAR] key (C)** Use this to clear the set number of copies, as well as cancel a job that is in progress. When a setting menu appears, use this key to move back to the previous menu level.
5	**Power save indicator** This lights up when the power save function is activated.	6	**RSPF indicator** This lights up when an original is placed in the RSPF.
7	**Error indicator** This lights steadily or blinks when a paper misfeed or other error occurs.	8	**[TRAY SELECT] key ( )** Use to select the paper tray that has the desired paper for copying.
9	**Tray location indicator** Indicates the selected paper tray. The indicator blinks when the tray is out of paper during operation or is not closed properly.	10	**[MENU] key** Press this key to select the paper size for copying, to configure a user program or to display the total count.
11	**[2-SIDED COPY] key** Press to select the automatic two-sided copying mode.	12	**[E-SORT/SP.FUN] key** Press to select the sort function, 2 IN 1 copy function, or margin shift function.
13	**[◄] key ( ), [►] key ( ), [ENTER] key** Press the [◄] key ( ) or [►] key ( ) to select an item in a function setting menu. Press the [ENTER] key to enter a selection.	14	**[EXPOSURE] key** Use to switch from auto exposure adjustment to text mode or photo mode.
15	**[COPY RATIO] key** Press to select an enlargement or reduction ratio. To select a preset ratio setting, press the [COPY RATIO] key and select the desired preset ratio. To select a ratio that is not preset, press the [COPY RATIO] key, select the preset ratio that is closest to the desired ratio, and then press the [◄] key ( ) or [►] key ( ) to increase or decrease the ratio in increments of 1%.	16	**[START] key ( ) / Ready indicator** The ready indicator lights up when copying or scanning is possible. To begin copying, press the [START] key ( ). The [START] key ( ) is also pressed to return to normal operation from auto power shut-off mode.
17	**[CLEAR ALL] key ( )** This returns all functions to the default settings. When pressed in a setting menu, this returns the settings and display to the initial state.	18	Shows the current copy ratio.
19	Shows the selected paper size.	20	Shows the number of copies that has been entered with the numeric keys.
21	A checkmark " ✓ " appears when the exposure has been changed, or when two-sided copying, sort, 2 IN 1, or margin shift is selected.	22	**Rapid keys** Press one of these keys to dial a fax or telephone number automatically.
23	**[MEMORY] key / indicator** Used for sending faxes in memory (indicator is lit) or direct sending (indicator is not lit).	24	**[SPEED/SEARCH] key** Press this key to dial a two digit Speed Dial number. During character inputting, use this key to delete an incorrect entry. Also, press this key twice to search for an automatic dialing number.
25	**[BROADCAST] key** Press this key to send originals to a group of receiving fax machines.	26	**[RECEPTION MODE] key** Press this key to select the mode of reception.
27	**[REDIAL/PAUSE] key** Press this key to automatically redial the last number you dialed. Also, press this key to insert a pause when entering numbers.	28	**[SHIFT] key / indicator** Press this key to switch between upper and lower case.
29	**[RESOLUTION] key** Press this key to adjust the resolution before sending faxes.	30	**[CONTRAST] key** Press this key to adjust the contrast before sending faxes.
31	**[COVERSHEET] key** Press this key to automatically add a cover sheet and message to a fax.	32	**LINE/FAX DATA indicator** Lit when sending/receiving faxes, blinking when receiving data.
33	**[LIST] key** Press this key to select from a list of available reports.	34	**[SPEAKER] key** Press this key to begin manual dialing. (To close the line, press the [SPEAKER] key again.)
35	**[2-SIDED TX] key** Press this key to fax a two-sided original.		

4. Motors and solenoids



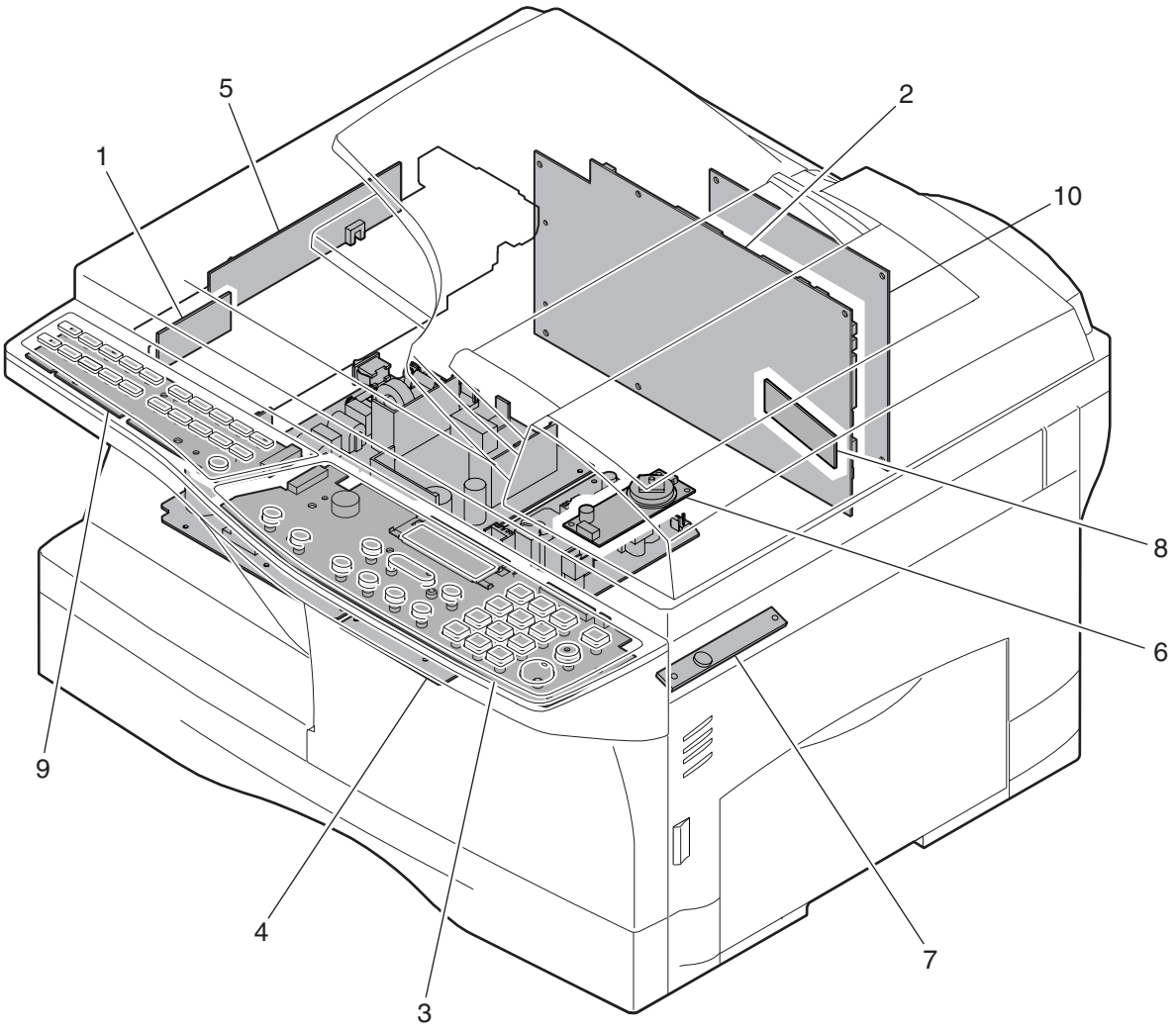
No.	Part name	Control signal	Function / Operation
1	Main motor	MM	Drives the copier.
2	Scanner motor	MRMT	Drives the optical mirror base (scanner unit).
3	Toner motor	TM	Supplies toner.
4	Cooling fan motor	VFM	Cools the optical section.
5	Resist roller solenoid	RRS	Resist roller rotation control solenoid
6	Paper feed solenoid	CPFS1	Cassette Paper feed solenoid 1
7	Multi paper feed solenoid	MPFS	Multi manual pages feed solenoid
8	SPF motor	SPFM	Drives the single pass feeder
9	Duplex motor	DMT	Devices the duplex paper transport section
10	Original feed solenoid	SPUS	Original pick up solenoid
11	SPF paper feed solenoid	SPFS	Original feed solenoid
12	SPF gate solenoid	SGS	Controls the document reverse gate.
13	Shifter motor	SFTM	Drives the shifter.

5. Sensors and switches



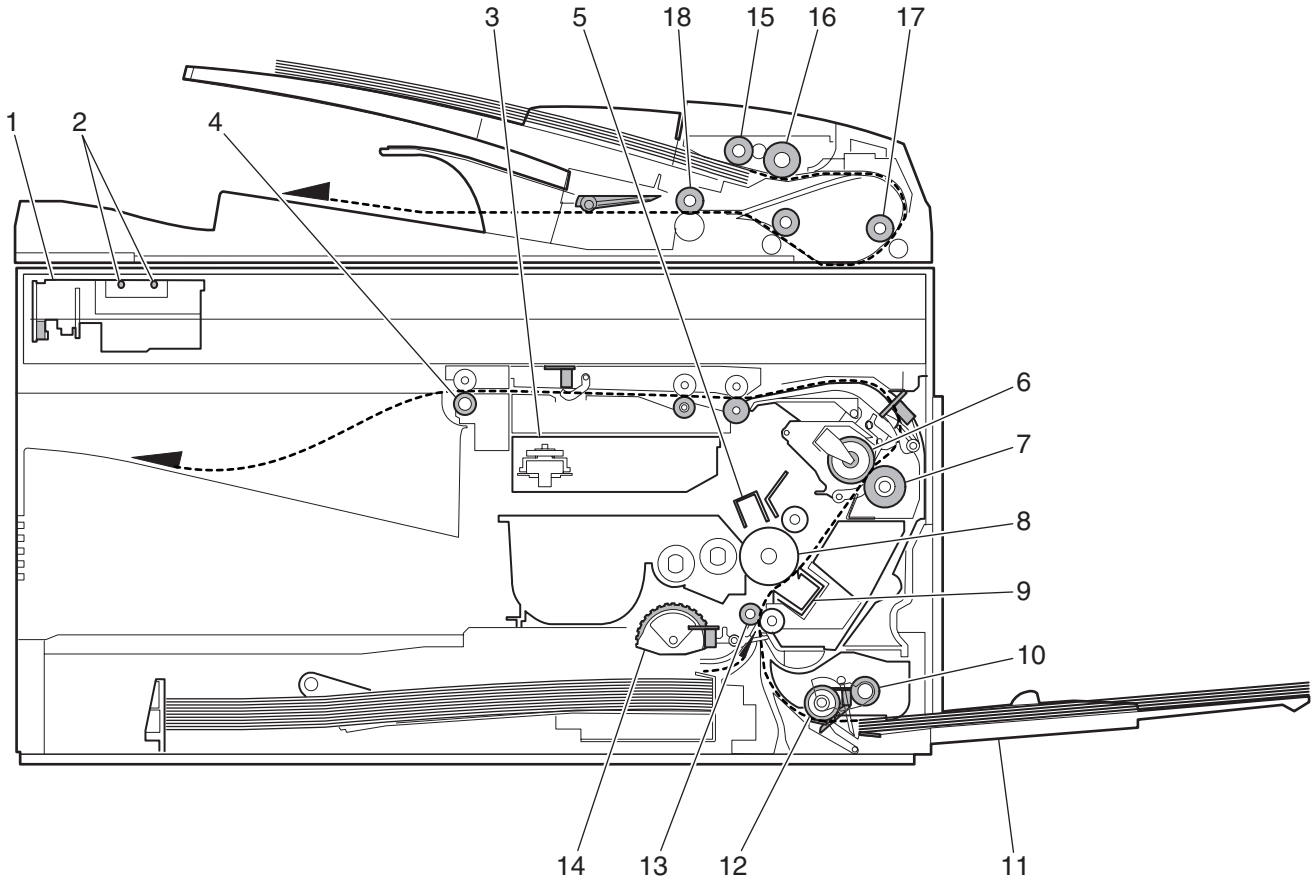
No.	Name	Signal	Type	Function	Output
1	Scanner unit home position sensor	MHPS	Transmission sensor	Scanner unit home position detection	"H" at home position
2	POD sensor	POD	Transmission sensor	Paper exit detection	"H" at paper pass
3	PPD2 sensor	PPD2	Transmission sensor	Paper transport detection 2	"L" at paper pass
4	Cassette detection switch	CED1	Micro-switch	Cassette installation detection	"H" at cassette insertion
5	PPD1 sensor	PPD1	Transmission sensor	Paper transport detection 1	"L" at paper pass
6	Door switch	DSW	Micro-switch	Door open/close detection (safety switch for 24V)	1 or 0V of 24V at door open
7	Drum reset switch	DRST	Micro-switch	New drum detection switch	Instantaneously "H" at insertion of new drum
8	SPF sensor	SPID/ SD SW	Transmission sensor	Paper entry detection Cover open/close detection	"L" at paper pass
9	SPPD sensor	SPPD	Transmission sensor	Paper transport detection	"L" at paper pass
10	PD1 sensor	PD1	Micro-switch	Paper width detect	"H" at B4 size or less "L" at B4 size or more

6. PWB unit



No.	Name	Function
1	Exposure lamp inverter PWB	Exposure lamp (CCFL) control
2	Main PWB (MCU)	Copier control
3	Operation PWB	Operation input/display
4	Power PWB	AC power input, DC voltage control, High voltage control
5	CCD sensor PWB	For image scanning
6	LSU motor PWB	For polygon motor drive (In the LSU)
7	TCS PWB	For toner sensor control
8	LSU PWB	For laser control (In the LSU)
9	FAX-operation PWB	FAX operation input
10	Modem PWB	FAX control

7. Cross sectional view



No.	Part name	Function and operation
1	Scanner unit	Illuminates the original with the copy lamp and passes the reflected light to the lens unit(CCD).
2	Exposure lamp	Exposure lamp (CCFL) Illuminates original
3	LSU (Laser unit)	Converts the original image signal into laser beams and writes onto the drum.
4	Paper exit roller	Roller for paper exit
5	Main charger	Provides negative charges evenly to the drum surface.
6	Heat roller	Fuses toner on the paper. (Teflon roller)
7	Pressure roller	Fuses toner on the paper. (Silicon rubber roller)
8	Drum	Forms images.
9	Transfer unit	Transfers images onto the drum.
10	Pickup roller	Picks up the manual feed paper. (In multi feed only)
11	Manual paper feed tray	Tray for manual feed paper
12	Manual paper feed roller	Transport the paper from the manual paper feed port.
13	PS roller unit	Takes synchronization between the lead edge and the rear edge of the paper.
14	Paper feed roller	Picks up a sheet of paper from the cassette.
15	Pickup roller	Picks up documents.
16	Separation roller	Separates documents to feed properly.
17	PS roller	Feeds documents to the scanning section.
18	Paper exit roller	Discharges documents.

[5] UNPACKING AND INSTALLATION

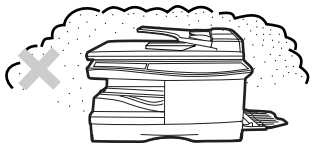
1. Copier installation

Improper installation may damage the copier. Please note the following during initial installation and whenever the copier is moved.

Caution: If the copier is moved from a cool place to a warm place, condensation may form inside the copier. Operation in this condition will cause poor copy quality and malfunctions.
Leave the copier at room temperature for at least 2 hours before use.

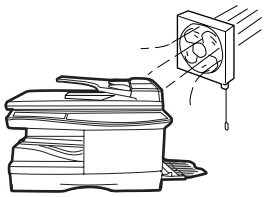
Do not install your copier in areas that are:

- damp, humid, or very dusty

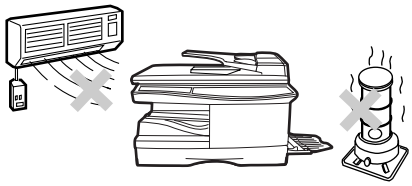


- exposed to direct sunlight

- poorly ventilated



- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.

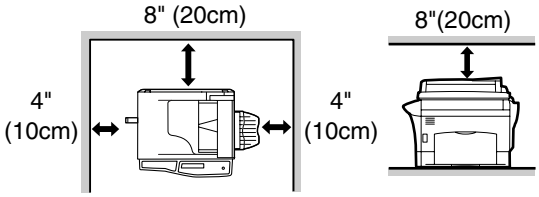


The copier should be installed near an accessible power outlet for easy connection.

Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements.

Also make certain the outlet is properly grounded.

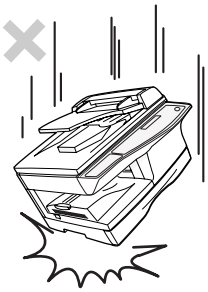
Be sure to allow the required space around the machine for servicing and proper ventilation.



2. Cautions on handling

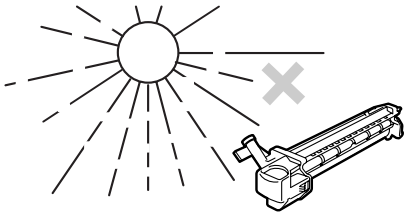
Be careful in handling the copier as follows to maintain the performance of this copier.

Do not drop the copier, subject it to shock or strike it against any object.



Do not expose the drum cartridge to direct sunlight.

Doing so will damage the surface (green portion) of the drum cartridge, causing poor print quality.



Store spare supplies such as drum cartridges and TD cartridges in a dark place without removing from the package before use.

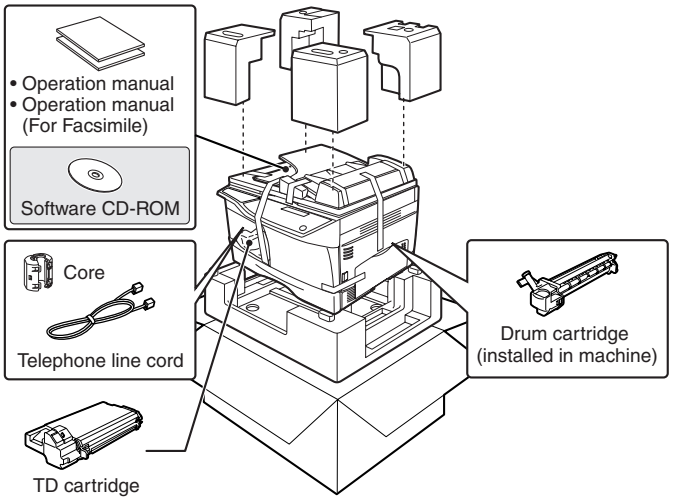
If they are exposed to direct sunlight, poor print quality may result.

Do not touch the surface (green portion) of the drum cartridge.

Doing so will damage the surface of the cartridge, causing poor print quality.

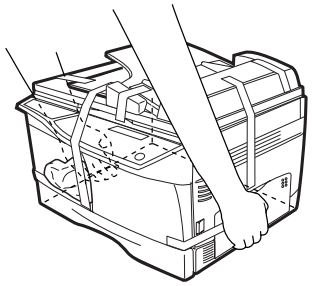
3. Checking packed components and accessories

Open the carton and check if the following components and accessories are included.



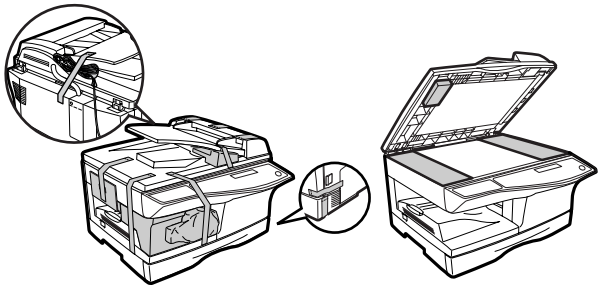
4. Unpacking

Be sure to hold the handles on both sides of the machine to unpack the machine and carry it to the installation location.

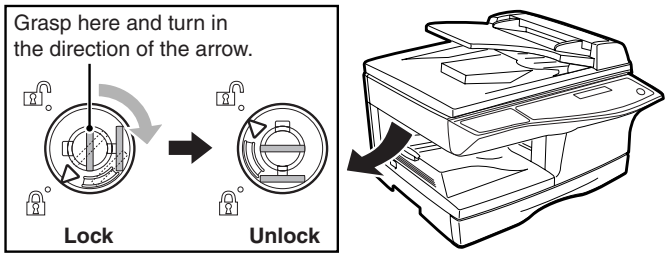


5. Removing protective packing materials

1) Remove all pieces of tape shown in the illustration below and then open the RSPF and remove the protective materials. Take out the bag containing the TD cartridge.

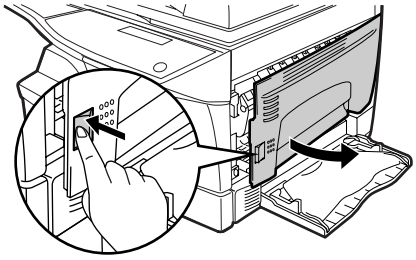


2) Release the scan head locking switch.

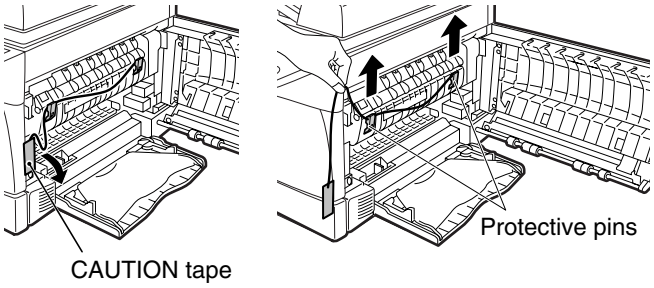


6. Installing the TD cartridge

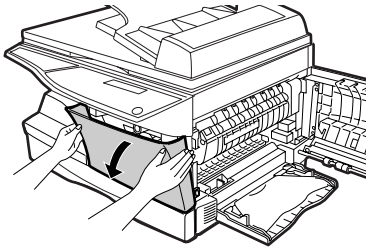
1) Open the bypass tray, and then open the side cover.



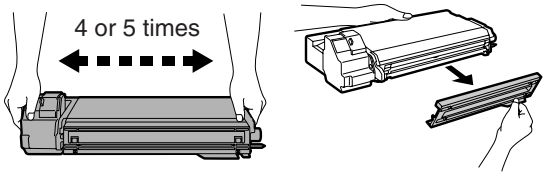
2) Remove the CAUTION tape from the front cover and remove the two protective pins from the fusing machine by pulling the strings upward one at a time.



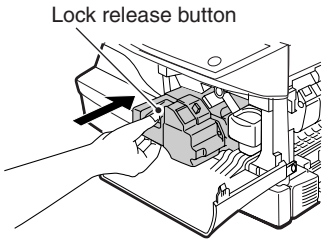
3) Press gently on both sides of the front cover to open the cover.



4) Remove the TD cartridge from the bag. Remove the protective paper. Hold the cartridge on both sides and shake it horizontally four or five times. Hold the tab of the protective cover and pull the tab to your side to remove the cover.

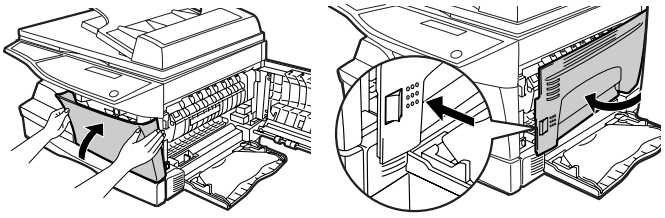


5) While pushing the lock release button, gently insert the TD cartridge until it locks into place.



6) Close the front cover and then the side cover by pressing the round projections near the side cover open button.

Note: When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.

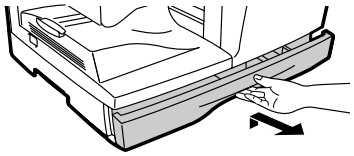


7) Ensure that the power switch of the machine is in the OFF position. Plug the other end of the power cord into the nearest outlet.

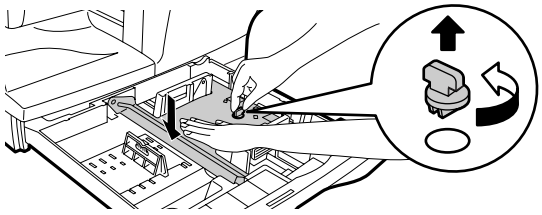
7. Loading the paper tray

Note: Make sure that the paper is not torn, is free of dust, and has no wrinkles or curled edges.

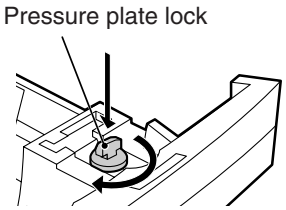
1) Raise the handle of the paper tray and pull the paper tray out until it stops.



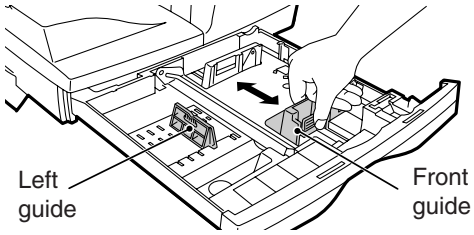
2) Remove the pressure plate lock. Rotate the pressure plate lock in the direction of the arrow to remove it while pressing down on the pressure plate of the paper tray.



3) Store the pressure plate lock which has been removed in step 2. To store the pressure plate lock, rotate the lock to secure it as shown below.



4) Squeeze the lock lever of the front guide and slide the front guide to match the width of the paper, and move the left guide to the appropriate slot as marked on the tray.

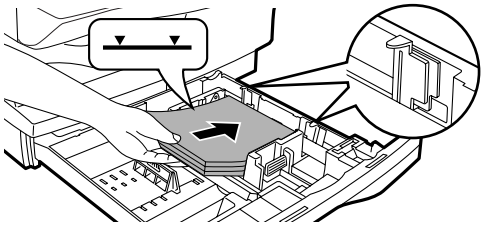


- The front guide is a slide-type guide. Grasp the locking knob on the guide and slide the guide to the indicator line of the paper to be loaded.
- The left guide is an insert-type guide. Remove it and then insert it at the indicator line of the paper to be loaded.

5) Fan the paper and insert it into the tray. Make sure that the edges go under the corner hooks.

Note:

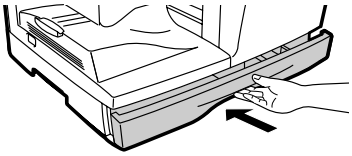
- Do not load paper above the maximum height line (▼▼). Exceeding the line will cause a paper misfeed.
- If the paper is not fanned, double-feeds or misfeeds may occur.
- Make sure the stack of paper is straight before loading it. When adding paper, take the remaining paper out and combine it into a single stack with the new paper.
- Make sure that all the paper in the stack is the same size and type.
- When loading paper, ensure that there is no space between the paper and the guide, and make sure that the guide is not set too narrow and causes the paper to bend. Incorrect loading will cause the paper to skew or misfeed.



6) Gently push the paper tray back into the machine.

Note:

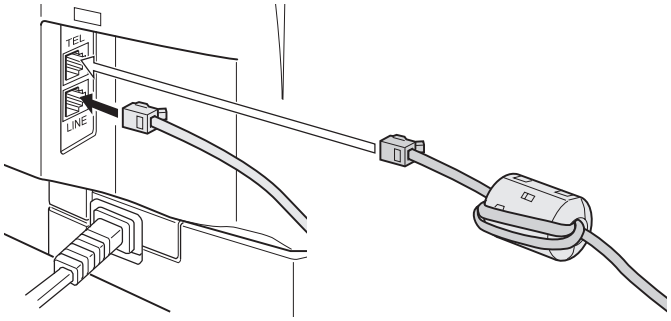
- If you loaded a different size of paper than was loaded previously in the tray.
- When not using the machine for an extended period, remove all paper from the paper tray and store it in a dry place. If paper is left in the machine for an extended period, the paper will absorb moisture from the air, resulting in paper jams.



8. Connect the FAX modem PWB line cable

Connect the line cable to the FAX modem PWB.

To set up a telephone, wrap the line cable twice around the core, and connect it to the FAX modem PWB as shown.



9. Power to copier

1) Ensure that the power switch of the copier is in the OFF position. Insert the attached power cord into the power cord socket at the rear of the copier.
2) Plug the other end of the power cord into the nearest outlet.

10. Software for FO-DC550

The CD-ROM that accompanies the machine contains the following software:

MFP driver

Printer driver

The printer driver enables you to use the printer function of the machine.

The printer driver includes the Print Status Window*. This is a utility that monitors the machine and informs you of the printing status, the name of the document currently being printed, and error messages.

* When the machine is connected through the parallel port, the Print Status Window can only be used when the parallel port is set to ECP mode. To set the parallel port mode, refer to your computer manual or ask the manufacturer of your computer.

Scanner driver (USB only)

The scanner driver allows you to use the scanning function of the machine with TWAIN-compliant and WIA-compliant applications.

Sharpdesk

Sharpdesk is an integrated software environment that makes it easy to manage documents and image files, and launch applications.

Button Manager

Button Manager allows you to use the scanner menus on the machine to scan a document.

Note: The scanning feature can only be used with computers that are running Windows 98/Me/2000/XP and are connected to the machine by a USB cable. If you are running Windows 95/NT 4.0 or are connected to the machine by a parallel connection, only the printer function can be used.

A. Before installation

(1) Hardware and software requirements

Check the following hardware and software requirements in order to install the software.

Computer type	IBM PC/AT or compatible computer equipped with a USB2.0*1/1.1*2 or bi-directional parallel interface (IEEE1284)
Operating system*3 *4	Windows 95, Windows 98, Windows Me, Windows NT Workstation 4.0 (ServicePack 5 or later)*5, Windows 2000 Professional*5, Windows XP Professional*5, Windows XP Home Edition*5
Display	800 x 600 dots (SVGA) display with 256 colors (or better)
Hard disk free space	150MB or more
Other hardware requirements	An environment on which any of the operating systems listed above can fully operate

*1 The machine's USB connector will transfer data at the speed specified by the USB 2.0 (Hi-Speed) only if the Microsoft USB 2.0 driver is preinstalled in the computer, or if the USB 2.0 driver for Windows 2000 Professional/XP that Microsoft provides through its "Windows Update" is installed.

*2 Compatible with Windows 98, Windows Me, Windows 2000 Professional, Windows XP Professional or Windows XP Home Edition preinstalled model equipped with a USB port.

*3 Printing is not available in MS-DOS mode.

*4 The machine does not support printing from a Macintosh environment.

*5 Administrator's rights are required to install the software using the installer.

(2) Installation environment and usable software

The following table shows the drivers and software that can be installed for each version of Windows and interface connection method.

Cable	Operating system	MFP Driver		Button Manager	Sharpdesk
		Printer driver	Scanner driver		
USB*1	Windows 98/ Me/2000/XP	Available *2	Available		
Parallel	Windows 95/ 98/Me/NT 4.0/ 2000/XP		Not Available*3		

*1 Windows 98/Me does not support USB 2.0. A USB 2.0 connection can be used in Windows 98/Me, however, the performance will be the same as USB 1.1. The print speed based on USB 2.0 specifications can only be attained if your computer is running Windows 2000/XP, you are using a cable that supports USB 2.0 (USB 1.1 or USB 2.0 certified), and the cable is connected to a USB 2.0 port on your computer. If the connection is made through a hub, the hub must support USB 2.0.

*2 The printer driver that is installed will vary depending on the type of connection between the machine and your computer.

*3 Although it is possible to install Button Manager and Sharpdesk on Windows 98/Me/2000/XP, neither Button Manager nor the scanner function of Sharpdesk can actually be used.

B. Installing the software

Note:

- If you need to use a different connection method after installing the software based on a USB or parallel connection, you must first uninstall the software and then install it using the new connection method.
- In the following explanations it is assumed that the mouse is configured for right hand operation.
- The scanner feature only works when using a USB cable.
- If an error message appears, follow the instructions on the screen to solve the problem. After the problem is solved, the installation procedure will continue. Depending on the problem, you may have to click the "Cancel" button to exit the installer. In this case, reinstall the software from the beginning after solving the problem.

[Standard installation (USB only)]

The procedure for a standard installation of the software is explained below. If the machine is connected by a USB cable, it is recommended that you use the standard installation.

Note: The standard installation can only be used when the machine is connected by a USB cable. If the machine is connected by a parallel cable, use the custom installation procedure.

1) The USB cable must not be connected to the machine. Make sure that the cable is not connected before proceeding.

   If the cable is connected, a Plug and Play window will appear. If this happens, click the "Cancel" button to close the window and disconnect the cable.

Note: The cable will be connected in step 9).

2) Insert the CD-ROM into your computer's CD-ROM drive.
3) Click the "start" button, click "My Computer", and then double-click the CD-ROM icon.

   In Windows 98/Me/2000, double-click "My Computer", and then double-click the CD-ROM icon.

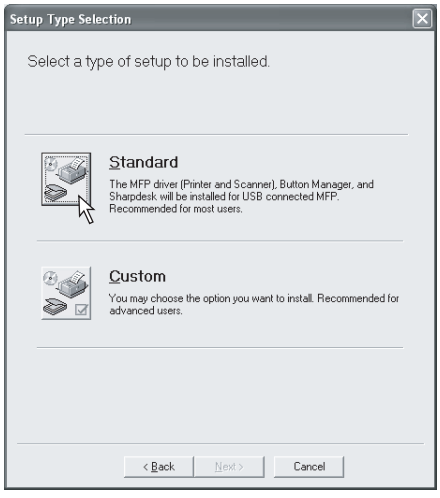
4) Double-click the "setup" icon.

Note: If the language selection screen appears after you double click the "setup" icon, select the language that you wish to use and click the "Next" button. (Normally the correct language is selected automatically.)

5) The "SOFTWARE LICENSE" window will appear. Make sure that you understand the contents of the software license, and then click the "Yes" button.
6) Read the "Readme First" in the "Welcome" window and then click the "Next" button.
7) Click the "Standard" button.

   "Integrated Installer is preparing..." will appear and then installation of the MFP driver, Button Manager, and Sharpdesk will begin automatically.

   Follow the on-screen instructions.


Setup Type Selection
Select a type of setup to be installed.
Standard
The MFP driver (Printer and Scanner), Button Manager, and Sharpdesk will be installed for USB connected MFP. Recommended for most users.
Custom
You may choose the option you want to install. Recommended for advanced users.
< Back
Next >
Cancel

8) When the "Finish" screen appears, click the "Close" button.

A message will appear instructing you to connect the machine to your computer. Click the "OK" button.

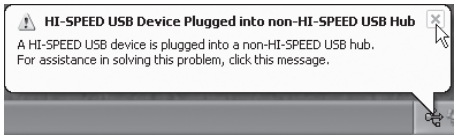
Caution: If you are running Windows 2000/XP and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Continue Anyway" or "Yes".

Note: After the installation, a message prompting you to restart your computer may appear. In this case, click the "Yes" button to restart your computer.

9) Make sure that the power of the machine is turned on, and then connect the USB cable.

Windows will detect the machine and a Plug and Play screen will appear.

Caution: If the following message appears on your computer screen, close it.


HI-SPEED USB Device Plugged into non-HI-SPEED USB Hub
A HI-SPEED USB device is plugged into a non-HI-SPEED USB hub.
For assistance in solving this problem, click this message.

A window regarding "HI-SPEED USB Device" will then appear. Close the window.

This message appears when the machine's USB 2.0 mode is not set to "HI-SPEED". For information on switching the USB 2.0 mode.

10) Follow the instructions in the plug and play window to install the MFP driver.

Follow the on-screen instructions.

Caution: If you are running Windows 2000/XP and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Continue Anyway" or "Yes".

Note: A "USB 2.0 Composite Device" installation window may appear prior to this procedure. In this case, follow the instructions in the window to install the USB 2.0 Composite Device.

This completes the installation of the MFP driver.

- If you installed Button Manager, set up Button Manager as explained in "C. SETTING UP BUTTON MANAGER".

[Custom installation]

The procedure for a custom installation of the software is explained below. Use the custom installation procedure when the machine is connected by a parallel cable, when the machine is used as a shared printer on a network, or when you wish to install the MFP driver, Button Manager, or Sharpdesk separately.

(1) Windows XP (USB/Parallel)

1) The USB/parallel cable must not be connected to the machine. Make sure that the cable is not connected before proceeding.

If the cable is connected, a Plug and Play window will appear. If this happens, click the "Cancel" button to close the window and disconnect the cable.

Note: The cable will be connected in step 14).

2) Insert the CD-ROM into your computer's CD-ROM drive.

3) Click the "start" button, click "My Computer", and then double-click the CD-ROM icon.

In Windows 98/Me/2000, double-click "My Computer", and then double-click the CD-ROM icon.

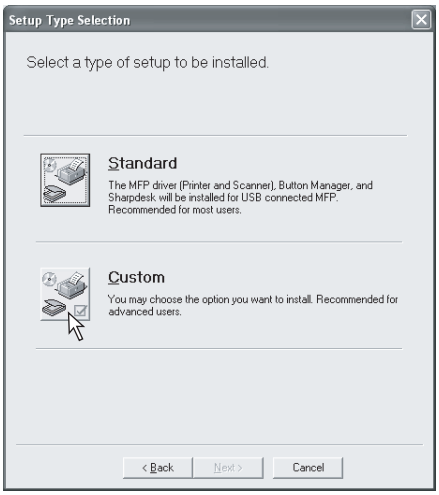
4) Double-click the "setup" icon.

Note: If the language selection screen appears after you double click the "setup" icon, select the language that you wish to use and click the "Next" button. (Normally the correct language is selected automatically.)

5) The "SOFTWARE LICENSE" window will appear. Make sure that you understand the contents of the software license, and then click the "Yes" button.

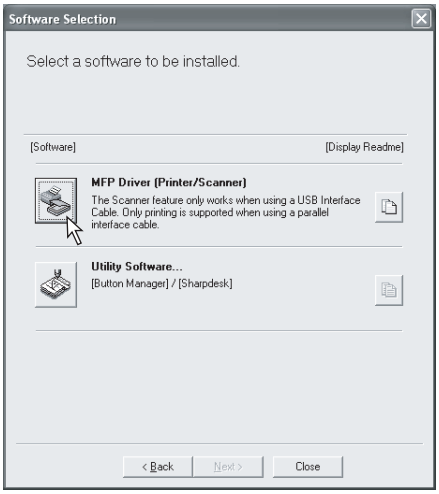
6) Read the "Readme First" in the "Welcome" window and then click the "Next" button.

7) Click the "Custom" button.


Setup Type Selection
Select a type of setup to be installed.
Standard
The MFP driver (Printer and Scanner), Button Manager, and Sharpdesk will be installed for USB connected MFP. Recommended for most users.
Custom
You may choose the option you want to install. Recommended for advanced users.
< Back
Next >
Cancel

8) Click the "MFP Driver" button.

To view detailed information on the software, click the "Display Readme" button.

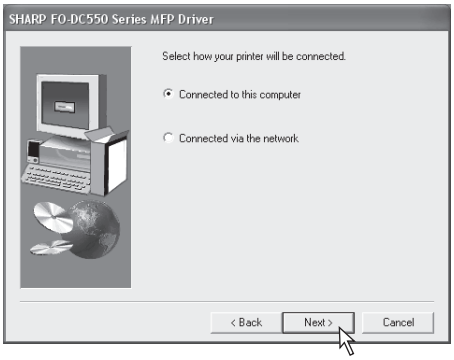

Software Selection
Select a software to be installed.
[Software]
[Display Readme]
MFP Driver (Printer/Scanner)
The Scanner feature only works when using a USB Interface Cable. Only printing is supported when using a parallel interface cable.
Utility Software...
[Button Manager] / [Sharpdesk]
< Back
Next >
Close

9) The "Welcome" window will appear. Click the "Next" button.

10) When you are asked how the printer is connected, select "Connected to this computer" and click the "Next" button.

If you are using the machine as a shared printer on a network, select "Connected via the network". For more information on this setting, see "Using the machine as a shared printer".

Follow the on-screen instructions.


SHARP FO-DC550 Series MFP Driver
Select how your printer will be connected.
Connected to this computer
Connected via the network
< Back
Next >
Cancel

Caution: If you are running Windows XP and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Continue Anyway".

11) You will return to the window of step 8). If you wish to install Button Manager or Sharpdesk, click the "Utility Software" button.

If you do not wish to install the Utility Software, click the "Close" button and go to step 14).

Note: After the installation, a message prompting you to restart your computer may appear. In this case, click the "Yes" button to restart your computer.

Installing the Utility Software

12) Click the "Button Manager" button.

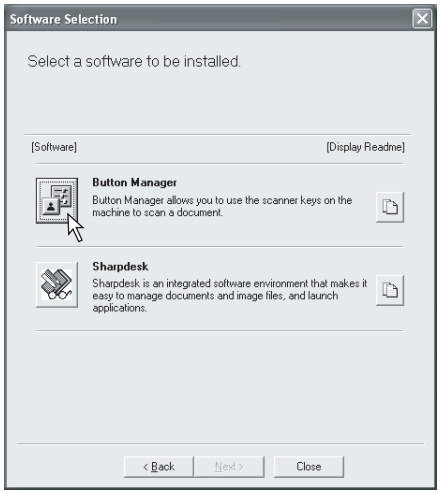
To view detailed information on the software, click the "Display Readme" button.

Follow the on-screen instructions.

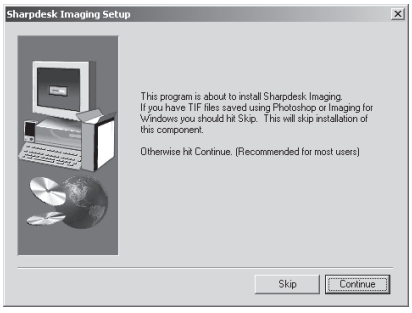
If you wish to install Sharpdesk, click the "Sharpdesk" button in this window and follow the on-screen instructions.

Caution:

- Button Manager can only be used when the machine is connected by a USB cable.
- The scanner function of Sharpdesk can only be used when the machine is connected by a USB cable.


Software Selection
Select a software to be installed.
[Software]
[Display Readme]
Button Manager
Button Manager allows you to use the scanner keys on the machine to scan a document.
Sharpdesk
Sharpdesk is an integrated software environment that makes it easy to manage documents and image files, and launch applications.
< Back
Next >
Close

Caution: If the following screen appears during installation of Sharpdesk, click the "Skip" button or the "Continue" button as appropriate to continue the Sharpdesk installation.


Sharpdesk Imaging Setup
This program is about to install Sharpdesk Imaging.
If you have TIF files saved using Photoshop or Imaging for Windows you should hit Skip. This will skip installation of this component.
Otherwise hit Continue. (Recommended for most users)
Skip
Continue

If "Skip" is selected, the Sharpdesk installation will continue without installing Sharpdesk imaging.

If "Continue" is selected, Sharpdesk Imaging will be installed. If Imaging for Windows is installed on your computer, Sharpdesk Imaging will overwrite Imaging for Windows.

13) When installation of Button Manager is finished, you will return to the window of step 12). Click the "Close" button.

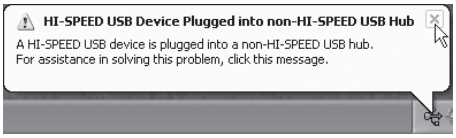
A message will appear instructing you to connect the machine to your computer. Click the "OK" button.

Note: After the installation, a message prompting you to restart your computer may appear. In this case, click the "Yes" button to restart your computer.

14) Make sure that the power of the machine is turned on, and then connect the USB/parallel cable.

Windows will detect the machine and a Plug and Play screen will appear.

Caution: If the following message appears on your computer screen, close it.


HI-SPEED USB Device Plugged into non-HI-SPEED USB Hub
A HI-SPEED USB device is plugged into a non-HI-SPEED USB hub.
For assistance in solving this problem, click this message.

A window regarding "HI-SPEED USB Device" will then appear. Close the window.

This message appears when the machine's USB 2.0 mode is not set to "HI-SPEED". For information on switching the USB 2.0 mode.

15) Follow the instructions in the plug and play window to install the MFP driver.

Follow the on-screen instructions.

Caution: If you are running Windows XP and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Continue Anyway".

Note: A "USB 2.0 Composite Device" installation window may appear prior to this procedure. In this case, follow the instructions in the window to install the USB 2.0 Composite Device.

This completes the installation of the MFP driver.

- If you installed Button Manager, set up Button Manager as explained in "C. Setting up button manager".

(2) Windows 98/Me/2000 (USB)

1) The USB cable must not be connected to the machine. Make sure that the cable is not connected before proceeding.

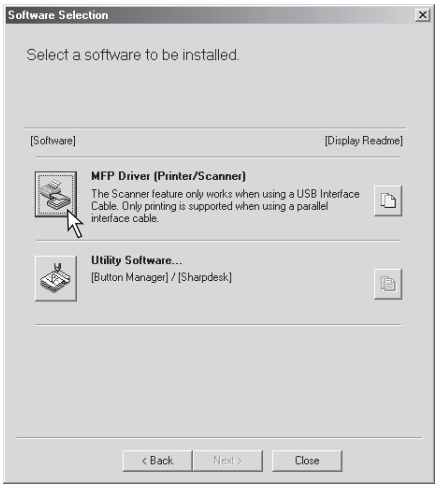
If the cable is connected, a Plug and Play window will appear. If this happens, click the "Cancel" button to close the window and disconnect the cable.

Note: The cable will be connected in step 8).

2) Perform steps 2) through 7) in "Custom installation".

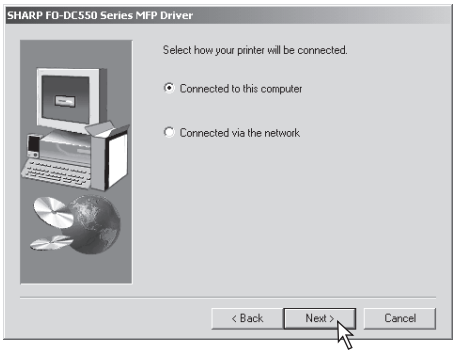
3) Click the "MFP Driver" button.

To view detailed information on the software, click the "Display Readme" button.


Software Selection
Select a software to be installed.
[Software]
[Display Readme]
MFP Driver (Printer/Scanner)
The Scanner feature only works when using a USB Interface Cable. Only printing is supported when using a parallel interface cable.
Utility Software...
[Button Manager] / [Sharpdesk]
< Back
Next >
Close

4) The "Welcome" window will appear. Click the "Next" button.

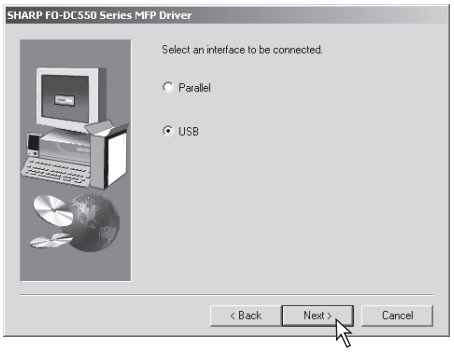
5) When you are asked how the printer is connected, select "Connected to this computer" and click the "Next" button.


SHARP FO-DC550 Series MFP Driver
Select how your printer will be connected.
Connected to this computer
Connected via the network
< Back
Next >
Cancel

6) When the interface selection screen appears, select "USB" and click the "Next" button.

If you are using the machine as a shared printer on a network, select "Connected via the network". For more information on this setting, see "Using the machine as a shared printer".

Follow the on-screen instructions.



Caution: If you are running Windows 2000 and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Yes".

7) You will return to the window of step 3). If you wish to install Button Manager or Sharpdesk, click the "Utility Software" button.

To install the Utility Software, see "Installing the Utility Software" (steps 12) and 13) on page 7).

If you do not wish to install the Utility Software, click the "Close" button.

A message will appear instructing you to connect the machine to your computer. Click the "OK" button.

Note: After the installation, a message prompting you to restart your computer may appear. In this case, click the "Yes" button to restart your computer.

8) Make sure that the power of the machine is turned on, and then connect the USB cable.

Windows will detect the machine and a Plug and Play screen will appear.

9) Follow the instructions in the plug and play window to install the MFP driver.

Follow the on-screen instructions.

Caution: If you are running Windows 2000 and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Yes".

Note: A "USB 2.0 Composite Device" installation window may appear prior to this procedure. In this case, follow the instructions in the window to install the USB 2.0 Composite Device.

This completes the installation of the MFP driver.

- If you installed Button Manager, set up Button Manager as explained in "C. Setting up button manager".

(3) Windows 95/98/Me/NT 4.0/2000 (Parallel)

1) The parallel cable must not be connected to the machine. Make sure that the cable is not connected before proceeding.

If the cable is connected, a Plug and Play window will appear. If this happens, click the "Cancel" button to close the window and disconnect the cable.

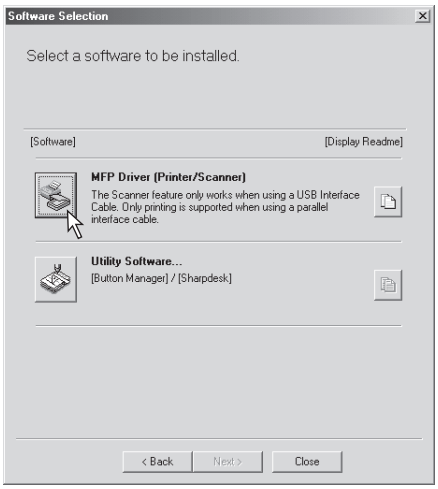
Note: The cable will be connected in step 10).

2) Perform steps 2) through 7) in "Custom installation".

3) Click the "MFP Driver" button.

To view detailed information on the software, click the "Display Readme" button.

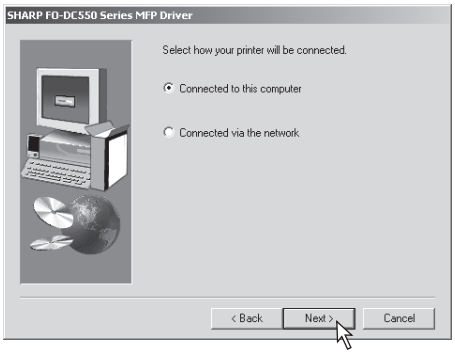
Note: In Windows 95/NT4.0, the "Utility Software" button does not appear and only the printer driver can be installed.


Software Selection
Select a software to be installed.
[Software]
[Display Readme]
MFP Driver (Printer/Scanner)
The Scanner feature only works when using a USB Interface Cable. Only printing is supported when using a parallel interface cable.
Utility Software...
[Button Manager] / [Sharpdesk]
< Back
Next >
Close

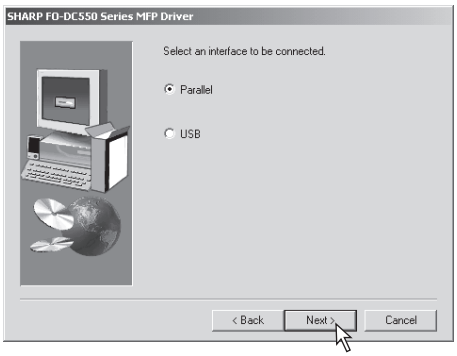
4) The "Welcome" window will appear. Click the "Next" button.

5) When you are asked how the printer is connected, select "Connected to this computer" and click the "Next" button.

If you are using the machine as a shared printer on a network, select "Connected via the network". For more information on this setting, see "Using the machine as a shared printer".

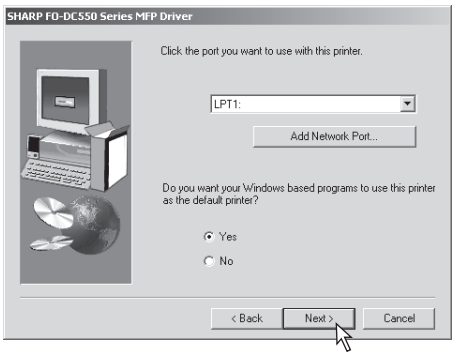

SHARP FO-DC550 Series MFP Driver
Select how your printer will be connected.
Connected to this computer
Connected via the network
< Back
Next >
Cancel

6) When the interface selection screen appears, select "Parallel" and click the "Next" button.



7) Select the printer port and whether the machine is to be used as the default printer, make the selections and click the "Next" button.

Select "LPT1" for the printer port.


SHARP FO-DC550 Series MFP Driver
Click the port you want to use with this printer.
LPT1:
Add Network Port...
Do you want your Windows based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

Note:

- If "LPT1" does not appear, another printer or peripheral device is using LPT1. In this case continue the installation, and after the installation is finished, change the port setting so that the machine can use LPT1.
- The "Add Network port" button is used when the machine is used as a shared printer. Do not click this button here.

8) When the model selection window appears, select model name of your machine and click the "Next" button.

Follow the on-screen instructions.

Caution: If you are running Windows 2000 and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Yes".

9) You will return to the window of step 3). If you wish to install Sharpdesk, click the "Utility Software" button.

To install the Utility Software, see "Installing the Utility Software" (steps 12) and 13) on page 7).

If you do not wish to install the Utility Software, click the "Close" button.

A message will appear instructing you to connect the machine to your computer. Click the "OK" button.

10) Make sure that the power of the machine is turned on, and then connect the parallel cable.

This completes the installation of the MFP driver.

(4) Using the machine as a shared printer

If the machine will be used as a shared printer on a network, follow these steps to install the MFP driver in the client computer.

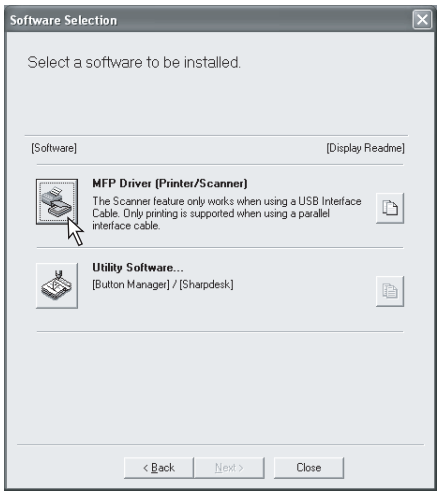
Note:

- To configure the appropriate settings in the print server, see the operation manual or help file of your operating system.
  "Print server" as explained here is a computer that is directly connected to the machine, and a "Client" is any other computer that is connected to the same network.
- When the machine is used via a network connection, only the printer function can be used; the scanner function cannot be used.

1) Perform steps 2) through 7) in "Custom installation".

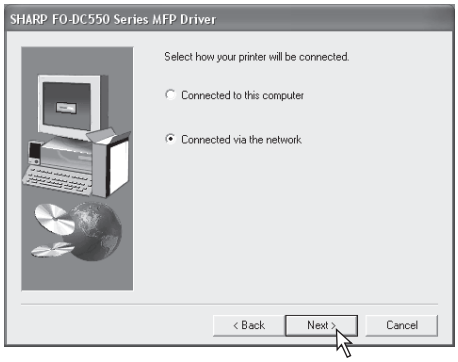
2) Click the "MFP Driver" button.

To view detailed information on the software, click the "Display Readme" button.

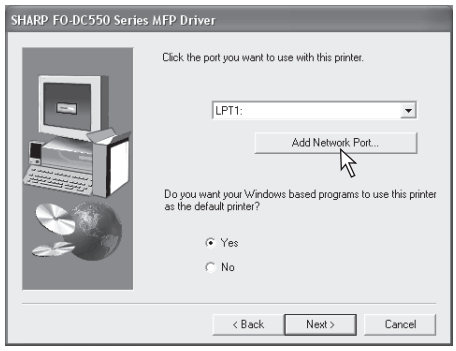

Software Selection
Select a software to be installed.
[Software]
[Display Readme]
MFP Driver (Printer/Scanner)
The Scanner feature only works when using a USB Interface Cable. Only printing is supported when using a parallel interface cable.
Utility Software...
[Button Manager] / [Sharpdesk]
< Back
Next >
Close

3) The "Welcome" window will appear. Click the "Next" button.

4) When you are asked how the printer is connected, select "Connected via the network" and click the "Next" button.

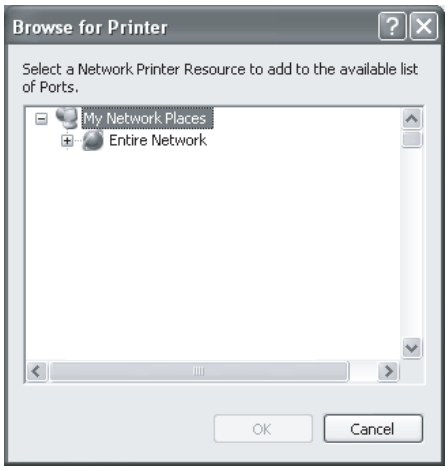

SHARP FO-DC550 Series MFP Driver
Select how your printer will be connected.
Connected to this computer
Connected via the network
< Back
Next >
Cancel

5) When you are asked to select the printer port to be used, click the "Add Network Port" button.


SHARP FO-DC550 Series MFP Driver
Click the port you want to use with this printer.
LPT1:
Add Network Port...
Do you want your Windows based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

6) Select the network printer that is shared and click the "OK" button.

Ask your network administrator for the server name and printer name of the machine on the network.



7) In the printer port selection window, verify the network printer that is shared and whether the machine is to be used as the default printer, make the selections and click the "Next" button.
8) When you are asked to select the model name, select the model that you are using and click the "Next" button.

Follow the on-screen instructions.

Caution: If you are running Windows 2000/XP and a warning message appears regarding the Windows logo test or digital signature, be sure to click "Continue Anyway" or "Yes".

9) You will return to the window of step 2). Click the "Close" button.

Note: After the installation, a message prompting you to restart your computer may appear. In this case, click the "Yes" button to restart your computer.

This completes the installation of the MFP driver.

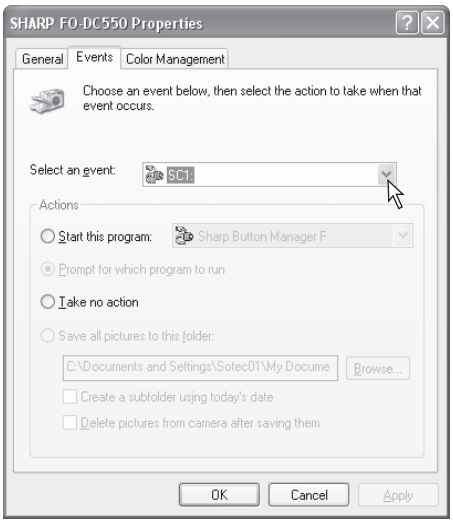
C. Setting up button manager

Button Manager is a software program that works with the scanner driver to enable scanning from the machine.

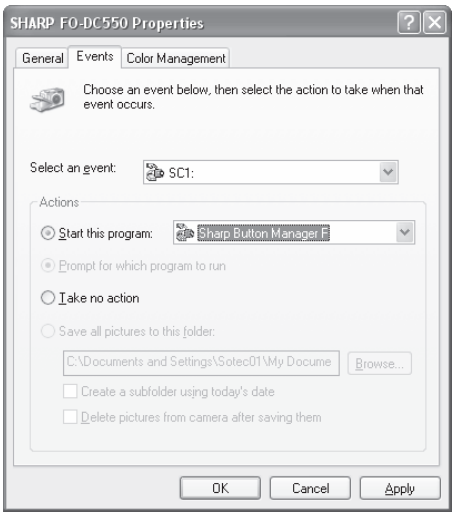
To scan using the machine, Button Manager must be linked with the scan menu on the machine. Follow the steps below to link Button Manager to scanner events.

(1) Windows XP

1) Click the "start" button, click "Control Panel", click "Printers and Other Hardware", and then click "Scanners and Cameras".
2) Click the "SHARP FO-DC550" icon and select "Properties" from the "File" menu.
3) In the "Properties" screen, click the "Events" tab.
4) Select "SC1:" from the "Select an event" pull-down menu.



5) Select "Start this program" and then select "Sharp Button Manager F" from the pull-down menu.



6) Click the "Apply" button.
7) Repeat Steps 4) through 6) to link Button Manager to "SC2:" through "SC6:".

Select "SC2:" from the "Select an event" pull-down menu. Select "Start this program", select "Sharp Button Manager E" from the pull-down menu, and then click the "Apply" button. Do the same for each ScanMenu through "SC6:".

When the settings have been completed, click the "OK" button to close the screen.

Button Manager is now linked to the scan menu (1 through 6).

The scan settings for each of scan menu 1 through 6 can be changed with the setting window of Button Manager.

For the factory default settings of the scan menu and the procedures for configuring Button Manager settings.

(2) Windows 98/Me/2000

1) Click the "Start" button, select "Settings", and then click "Control Panel".
2) Double-click the "Scanners and Cameras" icon.

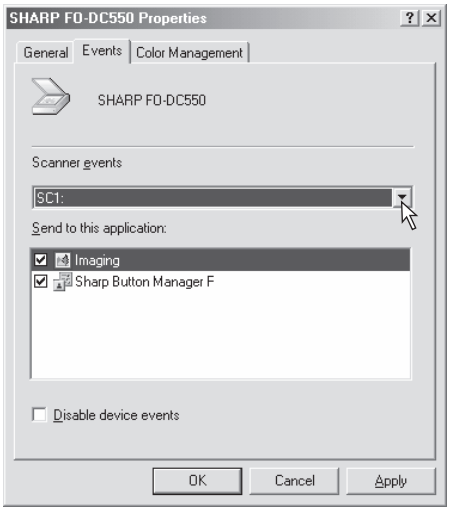
Note: If the "Scanners and Cameras" icon does not appear in Windows Me, click "view all Control Panel options".

3) Select "SHARP FO-DC550" and click the "Properties" button.

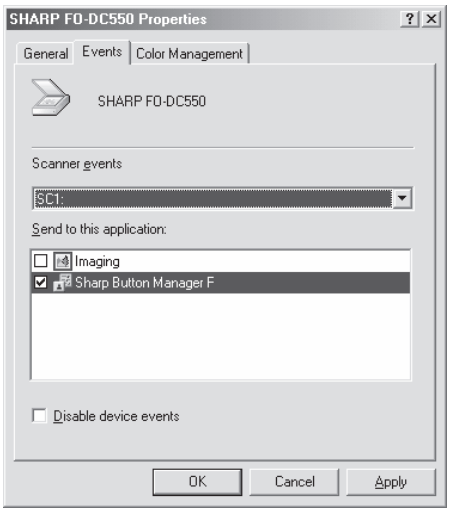
In Windows Me, right click "SHARP FO-DC550" and click "Properties" in the pop-up menu.

4) In the "Properties" screen, click the "Events" tab.

5) Select "SC1:" from the "Scanner events" pull-down menu.



6) Select "Sharp Button Manager F" in "Send to this application".



Note: If other applications are shown, deselect the checkboxes for the other applications and leave only the Button Manager checkbox selected.

7) Click the "Apply" button.

8) Repeat Steps 5) through 7) to link Button Manager to "SC2:" through "SC6:".

Select "SC2:" from the "Scanner events" pull-down menu. Select "Sharp Button Manager E" in "Send to this application" and click the "Apply" button. Do the same for each ScanMenu through "SC6:".

When the settings have been completed, click the "OK" button to close the screen.

Button Manager is now linked to the scan menu (1 through 6).

The scan settings for each of scan menus 1 through 6 can be changed with the setting window of Button Manager.

For the factory default settings of the scan menu and the procedures for configuring Button Manager settings.

D. Connecting the machine to your computer

(1) Connecting a USB cable

Follow the procedure below to connect the machine to your computer.

A USB cable for connecting the machine to your computer is not included with the machine. Please purchase the appropriate cable for your computer.

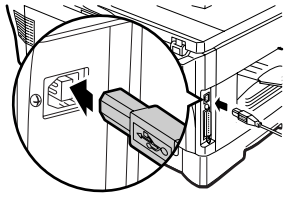
Caution:

- USB is available with a PC/AT compatible computer that was originally equipped with USB and had Windows 98, Windows Me, Windows 2000 Professional, Windows XP Professional or Windows XP Home Edition preinstalled.
- Do not connect the USB cable before installing the MFP driver. The USB cable should be connected during installation of the MFP driver.

Note:

- If the machine will be connected using a USB 2.0 port of your computer, please purchase a USB cable that supports USB 2.0.
- The machine's USB connector will transfer data at the speed specified by the USB 2.0 (Hi-Speed) only if the Microsoft USB 2.0 driver is preinstalled in the computer, or if the USB 2.0 driver for Windows 2000 Professional/XP that Microsoft provides through its "Windows Update" Web page is installed.
- To obtain the fastest USB 2.0 data transfer speed, "USB2.0 MODE SWITCH" in the machine's user programs must be set to "HI-SPEED".
- Use the machine's "HI-SPEED" mode only when using a computer that is running Windows 2000/XP.
- Even when the Microsoft USB 2.0 driver is used, it may not be possible to obtain full USB 2.0 speed if a PC card supporting USB 2.0 is used. To obtain the latest driver (which may enable a higher speed), contact the manufacturer of your PC card.
- Connection is also possible using a USB 1.1 port on your computer. However, the specifications will be USB 1.1 specifications (Full-Speed).

1) Insert the cable into the USB connector on the machine.

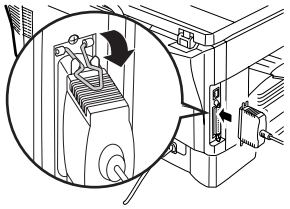


2) Insert the other end of the cable into your computer's USB port.

(2) Connecting a parallel cable

1) Obtain an IEEE1284 shielded parallel interface cable.

2) Insert the cable into the parallel interface connector located on the rear of the unit, and fasten with clasps.



3) Insert the other end of the cable into the interface connector of your computer.

11. Interface

A. USB

Connector

4-pin ACON UBR23-4K2200

Type-B connector

Cable

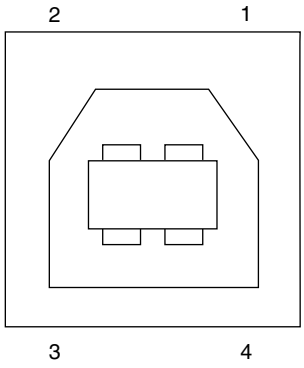
Shielded twisted pair cable

(2 m (6 feet) Max.: high-speed transmission equivalent)

Pin configuration

The pin numbers and signal names are listed in the following table.

Pin No.	Signal name
1	+5V
2	-DATA
3	+DATA
4	GND



B. Parallel interface

This printer uses a bi-directional parallel interface. Use the supplied interface cable.

Connector

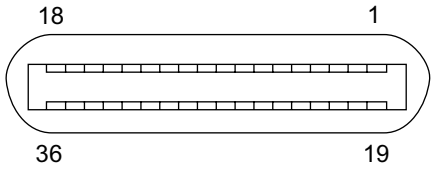
36-pin ACON RBE42-36K1153 female connector or equivalent connector

Cable

Shielded type bi-directional parallel interface For best results, use a printer interface cable which is IEEE1284 compliant.

Pin configuration

The pin numbers and signal names are listed in the following table.



Pin No.	Signal name	Pin No.	Signal name
1	$\overline{\text{STB}}$	19	GND (STB RET)
2	DATA1	20	GND (DATA1 RET)
3	DATA2	21	GND (DATA2 RET)
4	DATA3	22	GND (DATA3 RET)
5	DATA4	23	GND (DATA4 RET)
6	DATA5	24	GND (DATA5 RET)
7	DATA6	25	GND (DATA6 RET)
8	DATA7	26	GND (DATA7 RET)
9	DATA8	27	GND (DATA8 RET)
10	$\overline{\text{ACKNLG}}$	28	GND ($\overline{\text{ACKNLG}}$ RET)
11	BUSY	29	GND (BUSY RET)
12	PE (Paper End)	30	GND (PE RET)
13	SLTC	31	INPRM
14	$\overline{\text{AUTO LF}}$	32	$\overline{\text{FAULT}}$
15	(NC)	33	(NC)
16	GND (0 V)	34	(NC)
17	FG	35	+5 V
18	+5 V	36	$\overline{\text{SLTC IN}}$

12. Moving

Moving instructions

When moving the unit, follow the procedure below.

Note: When moving this unit, be sure to remove the TD cartridge in advance.

1) Turn the power switch off and remove the power cord from the outlet.
2) Open the side cover and front cover, in that order. Remove the TD cartridge and close the front cover and side cover, in that order.

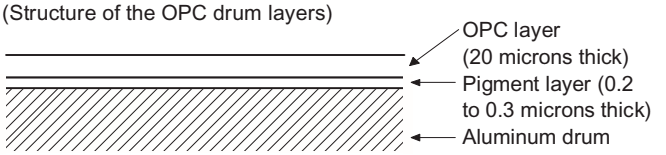
   To open and close the side cover and front cover, and to remove the TD cartridge.
3) Raise the handle of the paper tray and pull the paper tray out until it stops.
4) Push the center of the pressure plate down until it locks in place and lock the plate using the pressure plate lock which has been stored in the front of the paper tray.
5) Push the paper tray back into the unit.
6) Lock the scan head locking switch.

Note: When shipping the unit, the scan head locking switch must be locked to prevent shipping damage.

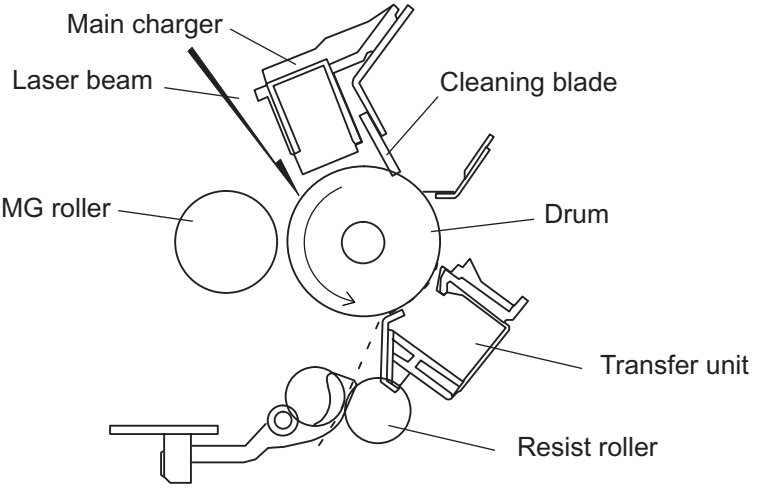
7) Close the multi-bypass tray and the paper output tray extension, and attach the packing materials and tape which were removed during installation of the unit.
8) Pack the unit into the carton.

[6] COPY PROCESS

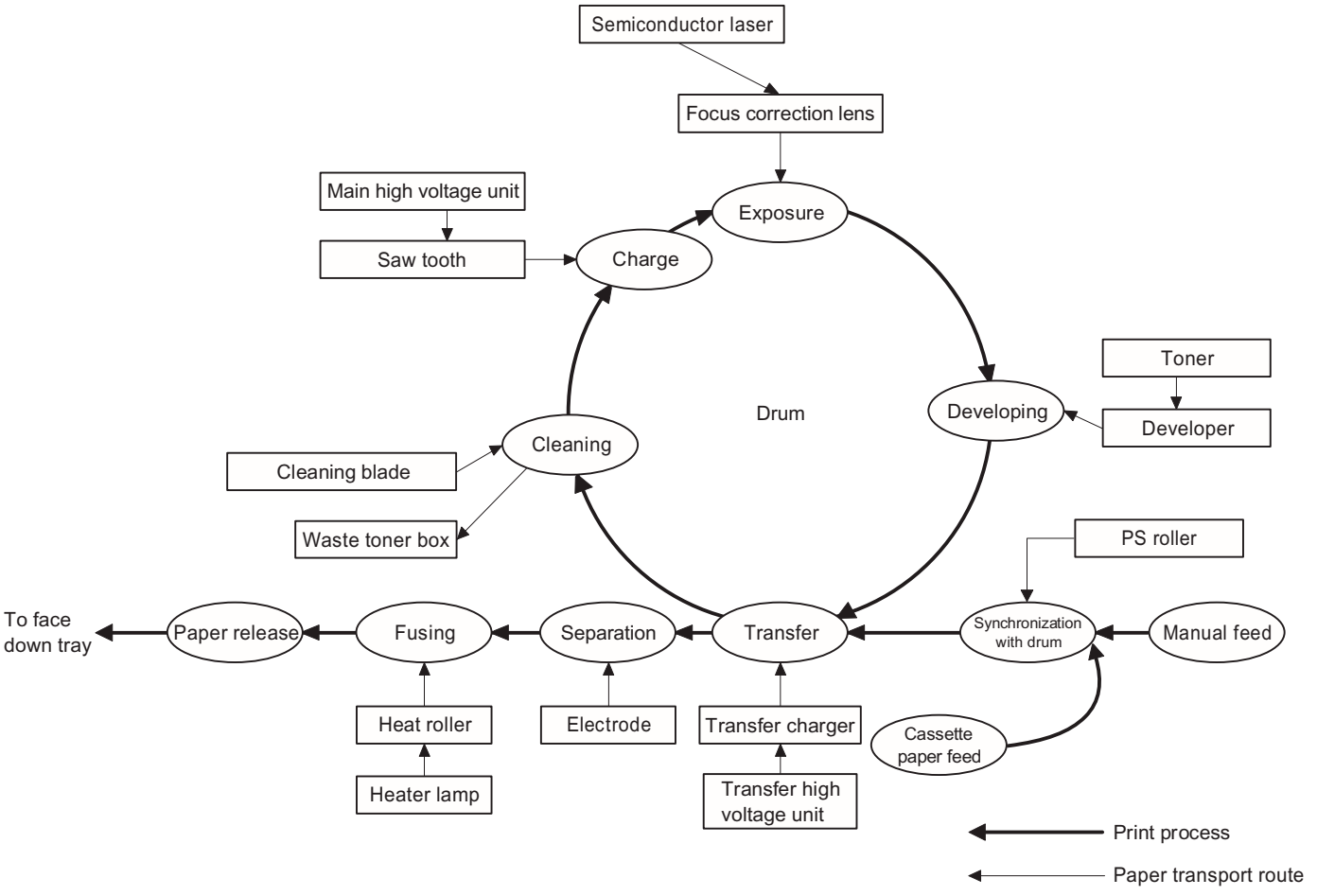
An OPC drum is used for the photoconductor.
(Structure of the OPC drum layers)



1. Functional diagram



(Basic operation cycle)



2. Outline of print process

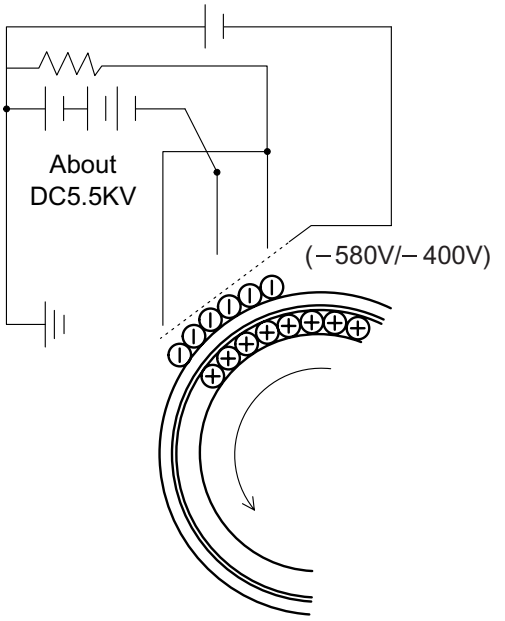
This printer is a non-impact printer that uses a semiconductor laser and electrostatic print process. This printer uses an OPC (Organic Photo Conductor) for its photoconductive material.
First, voltage from the main corona unit charges the drum surface and a latent image is formed on the drum surface using a laser beam. This latent image forms a visible image on the drum surface when toner is applied. The toner image is then transferred onto the print paper by the transfer corona and fused on the print paper in the fusing section with a combination of heat and pressure.

Step-1: Charge
Step-2: Exposure
* Latent image is formed on the drum.
Step-3: Developing
Latent image formed on the drum is then changed into visible image with toner.
Step-4: Transfer
The visible image (toner image) on the drum is transferred onto the print paper.
Step-5: Cleaning
Residual toner on the drum surface is removed and collected by the cleaning blade.
Step-6: Optical discharge
Residual charge on the drum surface is removed, by semiconductor laser beam.

3. Actual print process

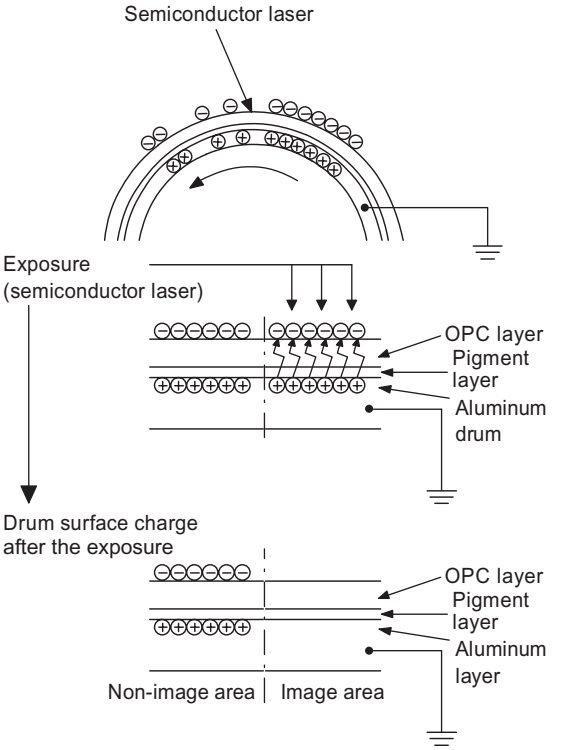
Step-1: DC charge

A uniform negative charge is applied over the OPC drum surface by the main charging unit. Stable potential is maintained by means of the Scorotron charger.
Positive charges are generated in the aluminum layer.



Step-2: Exposure (laser beam, lens)

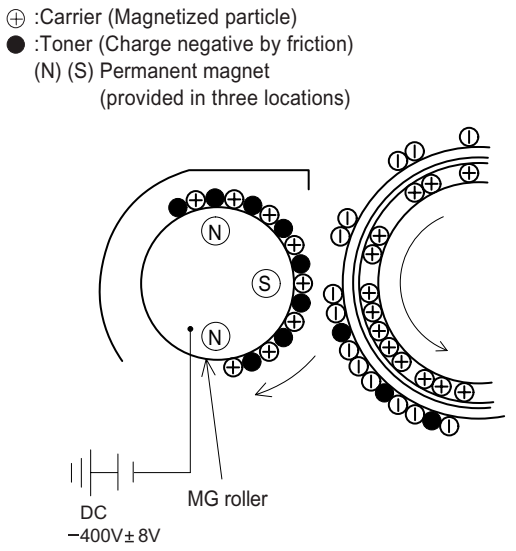
A Laser beam is generated from the semiconductor laser and controlled by the print pattern signal. The laser writes onto the OPC drum surface through the polygon mirrors and lens. The resistance of the OPC layer decreases for an area exposed by the laser beam (corresponding to the print pattern signal). The beam neutralizes the negative charge. An electrostatic latent image is formed on the drum surface.

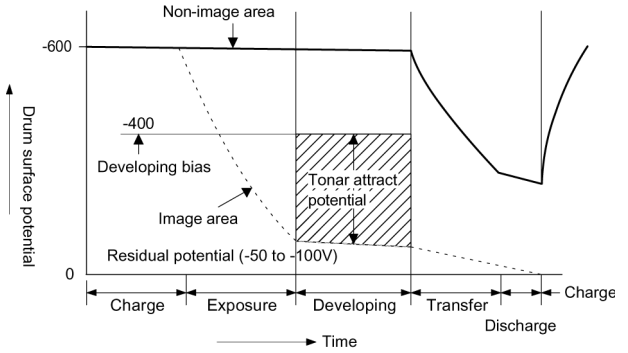


Step-3: Developing (DC bias)

A bias potential is applied to the MG roller in the two component magnetic brush developing method, and the toner is charged negative through friction with the carrier.

Non-image area of the drum surface charged with negative potential repel the toner, whereas the laser exposed portions where no negative charges exist, attract the toner. As a result, a visible image appears on the drum surface.

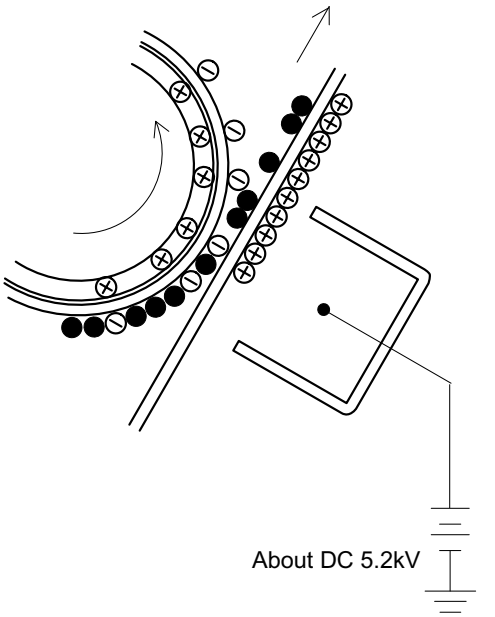




Toner is attracted over the shadowed area because of the developing bias.

Step-4: Transfer

The visible image on the drum surface is transferred onto the print paper by applying a positive charge from the transfer corona to the backside of the print paper.

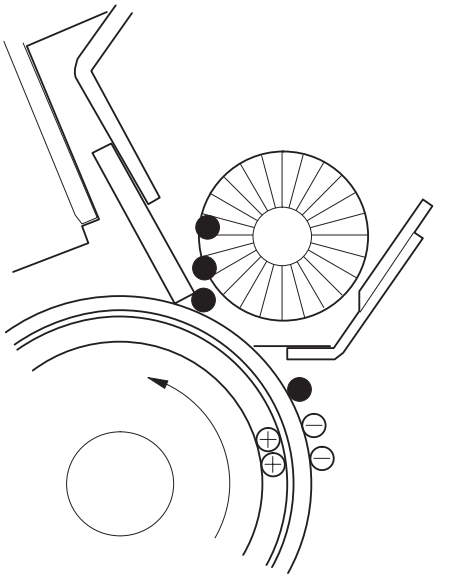


Step-5: Separation

Since the print paper is charged positively by the transfer corona, it is discharged by the separation corona. The separation corona is connected to ground.

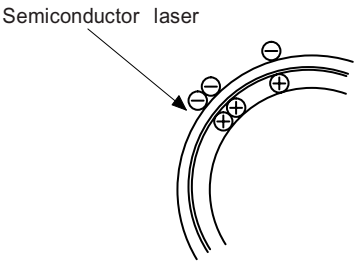
Step-6: Cleaning

Toner remaining on the drum is removed and collected by the cleaning blade. It is transported to the waste toner collecting section in the cleaning unit by the waste toner transport roller.



Step-7: Optical discharge (Semiconductor laser)

Before the drum rotation is stopped, the semiconductor laser is radiated onto the drum to reduce the electrical resistance in the OPC layer and eliminate residual charge, providing a uniform state to the drum surface for the next page to be printed.
When the electrical resistance is reduced, positive charges on the aluminum layer are moved and neutralized with negative charges on the OPC layer.



Charge by the Scorotron charger

Function

The Scorotron charger functions to maintain uniform surface potential on the drum at all times, It control the surface potential regardless of the charge characteristics of the photoconductor.

Basic function

A screen grid is placed between the saw tooth and the photoconductor. A stable voltage is added to the screen grid to maintain the corona current on the photoconductor.
As the photoconductor is charged by the saw tooth from the main corona unit, the surface potential increases. This increases the current flowing through the screen grid. When the photoconductor potential nears the grid potential, the current turns to flow to the grid so that the photoconductor potential can be maintained at a stable level.

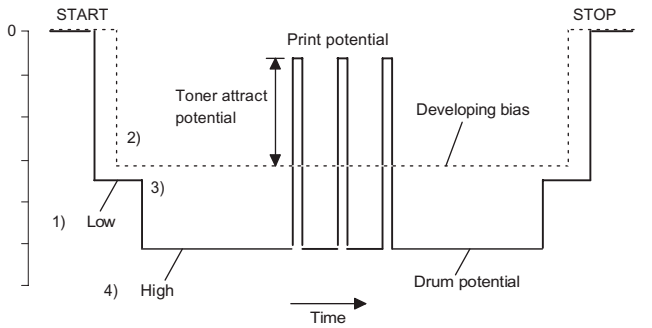
Process controlling

Function

The print pattern signal is converted into an invisible image by the semiconductor laser using negative to positive (reversible) developing method. Therefore, if the developing bias is added before the drum is charged, toner is attracted onto the drum. If the developing bias is not added when the drum is charged, the carrier is attracted to the drum because of the strong electrostatic force of the drum.
To avoid this, the process is controlled by adjusting the drum potential and the grid potential of the Scorotron charger.

Basic function

Voltage added to the screen grid can be selected, high and low. To make it easily understood, the figure below shows voltage transition at the developer unit.



Start

1) Because the grid potential is at a low level, the drum potential is at about -400V. (Carrier may not be attracted though the carrier is pulled towards the drum by the electrostatic force of -400V.
2) Developing bias (-400V) is applied when the photoconductor potential is switched from LOW to HIGH.
3) Once developing bias (-400V) is applied and the photo conductor potential rises to HIGH, toner will not be attracted to the drum.

Stop

The reverse sequence takes place.
Retaining developing bias at an abnormal occurrence

Function

The developing bias will be lost if the power supply was removed during print process. In this event, the drum potential slightly abates and the carrier makes deposits on the drum because of strong static power. To prevent this, the machine incorporates a function to retain the developing bias for a certain period and decrease the voltage gradually against possible power loss.

Basic function

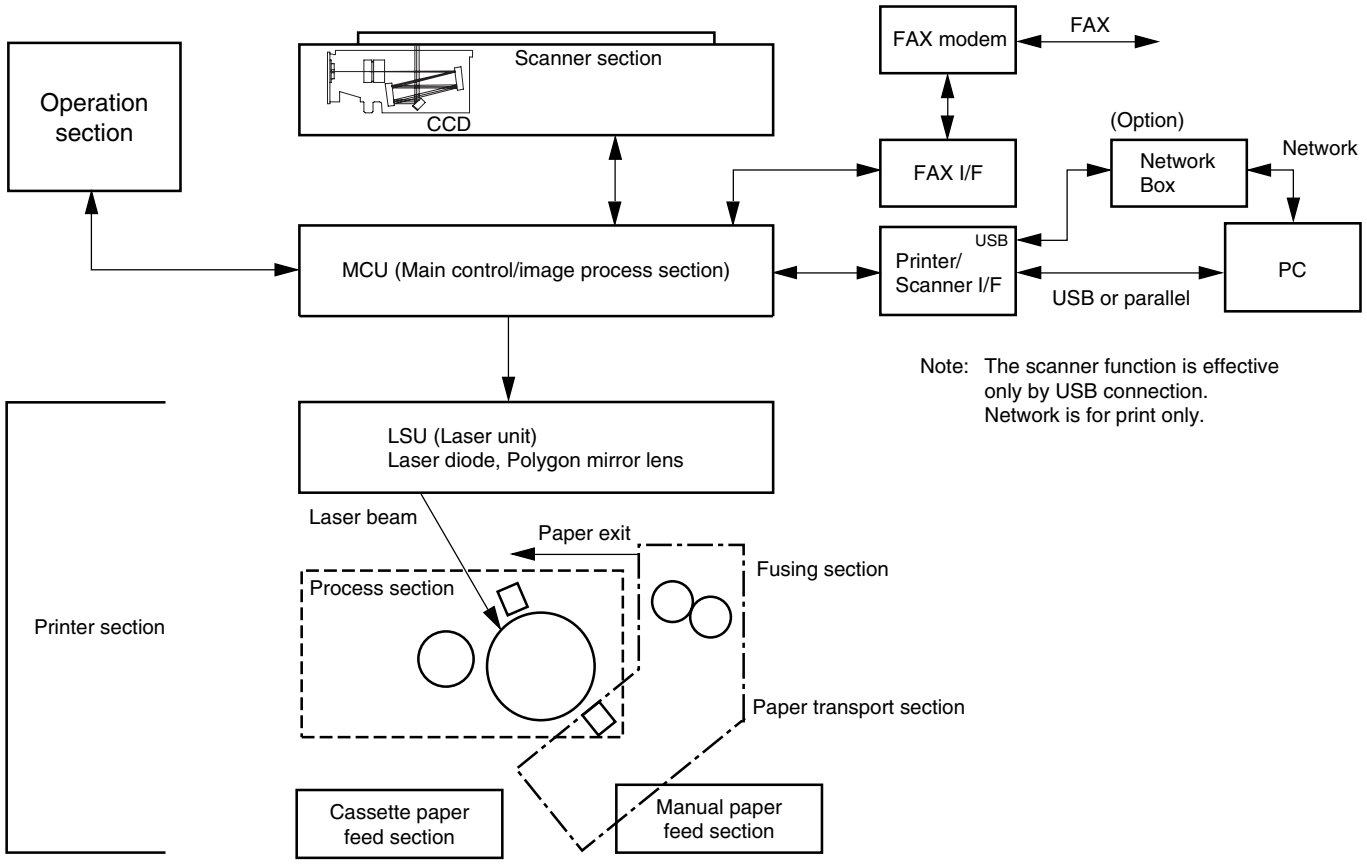
Normally, the developing bias voltage is retained for a certain time before the drum comes to a complete stop if the machine should stop before completing the normal print cycle. The developing bias can be added before resuming the operation after an abnormal interruption. Therefore, carrier will not make a deposit on the drum surface.

[7] OPERATIONAL DESCRIPTIONS

1. Outline of operation

The outline of operation is described referring to the basic configuration.

(Basic configuration)



(Outline of copy operation)

Setting conditions

1) Set copy conditions such as the copy quantity and the copy density with the operation section, and press the COPY button. The information on copy conditions is sent to the MCU.

Image scanning

2) When the COPY button is pressed, the scanner section starts scanning of images.
   The light from the copy lamp is reflected by the document and passed through the lens to the CCD.

Photo signal/Electric signal conversion

3) The image is converted into electrical signals by the CCD circuit and passed to the MCU.

Image process

4) The document image signal sent from the CCD circuit is processed under the revised conditions and sent to the LSU (laser unit) as print data.

Electric signal/Photo signal (laser beam) conversion

5) The LSU emits laser beams according to the print data.
   (Electrical signals are converted into photo signals.)
6) The laser beams are radiated through the polygon mirror and various lenses to the OPC drum.

Printing

7) Electrostatic latent images are formed on the OPC drum according to the laser beams, and the latent images are developed to be visible images(toner images).
8) Meanwhile the paper is fed to the image transfer section in synchronization with the image lead edge.
9) After the transfer of toner images onto the paper, the toner images are fused to the paper by the fusing section. The copied paper is discharged onto the exit tray.

(Outline of printer operation)

The print data sent from the PC are passed through the I/F and the MCU to the LSU. The procedures after that are the same as above 5) and later.

(Outline of scanner operation)

The scan data are passed through the MCU and the I/F to the PC according to the conditions requested by the PC or set by the operations with the operation panel.

2. Scanner section

A. Scanner unit

The scanner unit in the digital copier scans images.

It is composed of the optical unit and the drive unit. The optical unit performs scanning in the main scan direction with the light receiving elements (color CCD). The drive unit performs scanning in the sub scanning direction by moving the optical unit.

B. Optical system

Two white lamps are used as the light source.

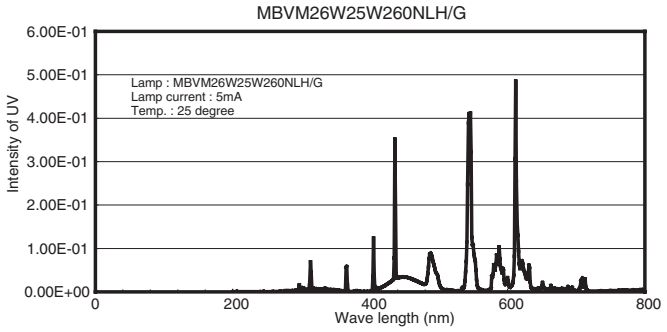
Light radiated from the light source is applied to the document on the document table. The reflected light from the document is reflected 5 times by No. 1 - No. 3 mirrors and passed through the reduction lens to form images on the light-receiving surface of 3-line CCD.

The light-receiving surface of the color CCD is provided with 3 line scanning sections for RGB. Separate images scanned in each color section are overlapped to complete color scanning. (When PC scanning)

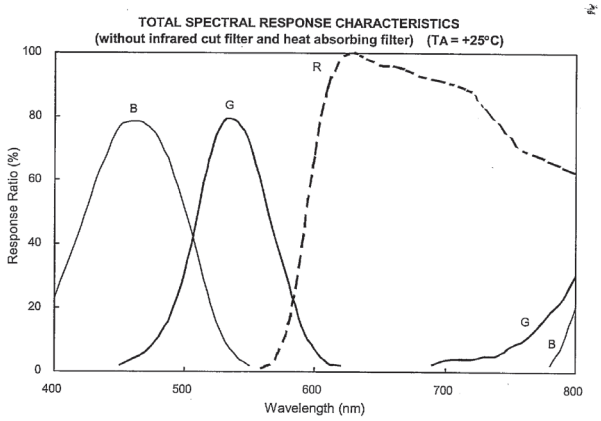
The resolution is 600dpi.

When copying, only the green component is used to print with the printer.

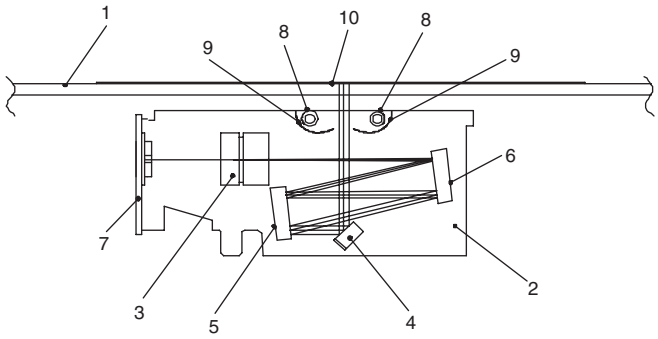
The color component for printing can be switched to red or blue by the service test command.



(Spectrum characteristics of the lamp)



(Spectrum characteristics of the color CCD)



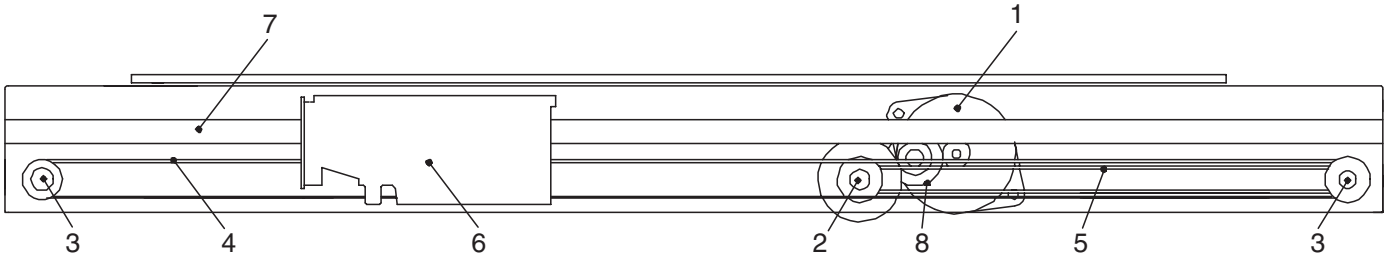
(Optical unit)

1	Table glass	2	Optical unit	3	Lens
4	Mirror 1	5	Mirror 2	6	Mirror 3
7	CCD PWB	8	Lamp	9	Reflector

C. Drive system

The drive system is composed of the scanner motor, the pulley gear, the idle pulley, the idle gear, the belt 473, the belt 190, and the shaft.

The motor rotation is converted into reciprocated movements of the belt 473 through the idle gear, the pulley gear, the belt 190, and the idle pulley to drive the optical unit.



1	Scanner motor	2	Pulley gear	3	Idle pulley
4	Belt 473	5	Belt 190	6	Optical unit
7	Shaft	8	Idle gear	9	

3. Laser unit

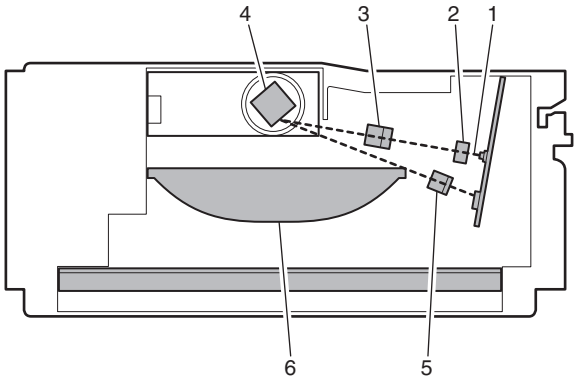
The image data sent from the MCU (image process circuit) is sent to the LSU (laser unit), where it is converted into laser beams.

A. Basic structure

The LSU unit is the writing section of the digital optical system.

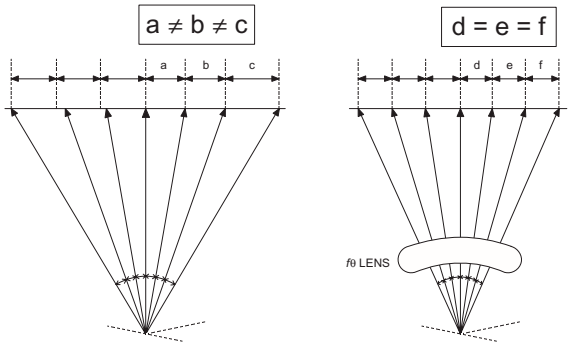
The semiconductor laser is used as the light source, and images are formed on the OPC drum by the polygon mirror and fθ lens, etc.

The laser beams are passed through the collimator lens, the cylindrical lens, the polygon mirror, the fθ lens, and the mirror to form images on the OPC drum in the main scanning direction. The laser emitting PWB is provided with the APC (auto power control) in order to eliminate fluctuations in the laser power. The BD PWB works for measurement of the laser writing start point.

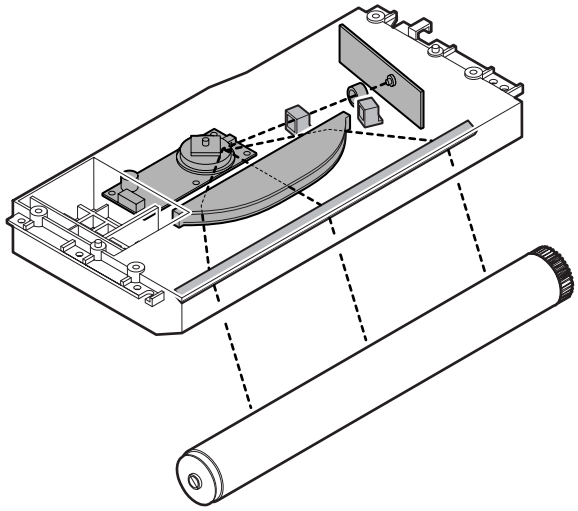


No	Component	Function
1	Semiconductor laser	Generates laser beams.
2	Collimator lens	Converges laser beams in parallel.
3	CY lens	Converges laser beams onto the polygon mirror surface.
4	Polygon mirror, polygon motor	Reflects laser beams at a constant rpm. (A four-surfaces polygon mirror is used.)
5	BD (Mirror, lens, PWB)	Detects start timing of laser scanning.
6	fθ lens	Converges laser beams at a spot on the drum.
		Makes the laser scanning speeds at both ends of the drum same as each other. (Refer to the figure below.)

Makes the laser scanning speeds at both ends of the drum same as each other.



B. Laser beam path



C. Composition

Effective scanning width: 216mm (max.)

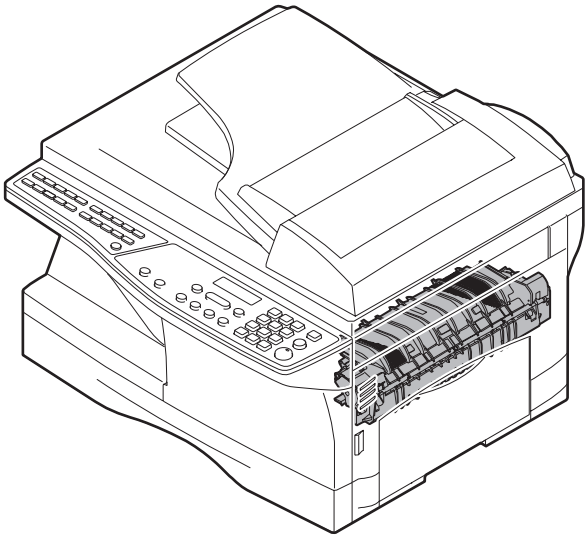
Resolution: 600dpi

Beam diameter: 75um in the main scanning direction, 80um in the sub scanning direction

Image surface power: 0.15 ±0.01mW (Laser wavelength 770 - 795nm)

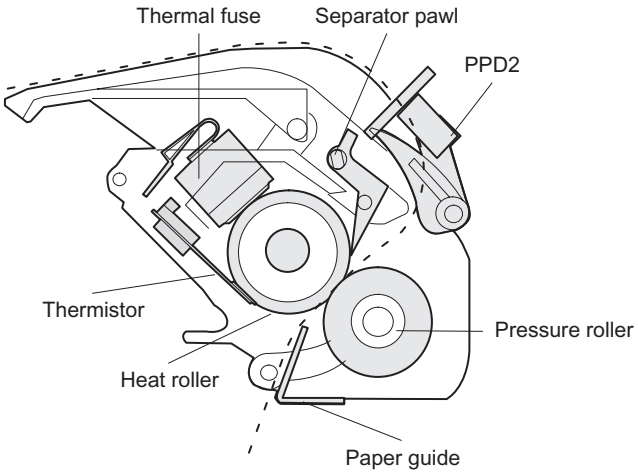
Polygon motor section: Brushless motor 31,180rpm
No. of mirror surfaces: 4 surfaces

4. Fuser section

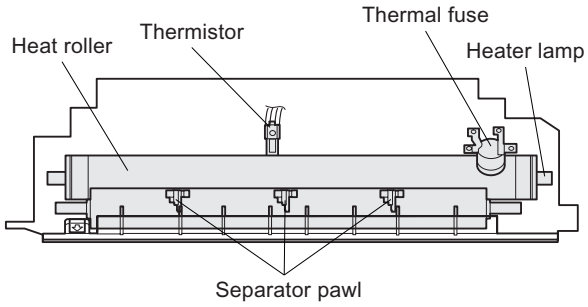


A. General description

General block diagram (cross section)



Top view



(1) Heat roller

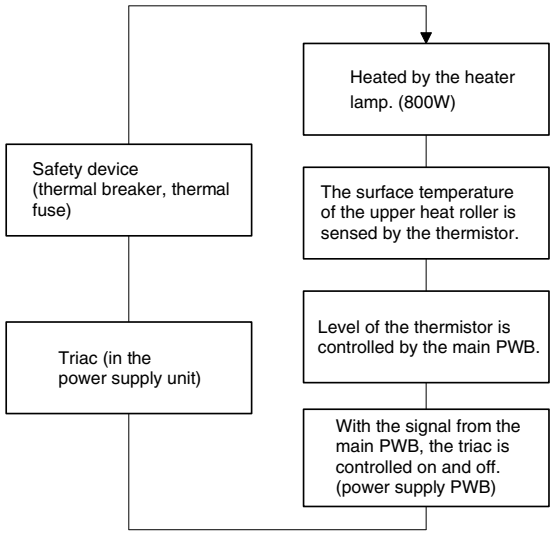
A Teflon roller is used for the heat roller and a silicone rubber roller is used for the lower heat roller for better toner fusing performance and paper separation.

(2) Separator pawl

Three separator pawls are used on the upper heat roller. The separator pawls are Teflon coated to reduce friction with the roller and prevent a smear on the paper caused by the separator pawl.

(3) Thermal control

1) The heater lamp, thermistor, main PWB, DC power supply PWB, and triac within the power supply unit are used to control the temperature in the fuser unit.
   To prevent against abnormally high temperature in the fuser unit, a thermal breaker and thermal fuse are used for safety purposes.


Heated by the heater lamp. (800W)
Safety device (thermal breaker, thermal fuse)
The surface temperature of the upper heat roller is sensed by the thermistor.
Level of the thermistor is controlled by the main PWB.
Triac (in the power supply unit)
With the signal from the main PWB, the triac is controlled on and off. (power supply PWB)

2) The surface temperature of the upper heat roller is set to 165 - 190°C. The surface temperature during the power save mode is set to 100°C.
3) The self-check function comes active when one of the following malfunctions occurs, and an "H" is displayed on the multicopy window.

a. When the heat roller surface temperature rises above 240°C.
b. When the heat roller surface temperature drops below 100°C during the copy cycle.
c. Open thermistor
d. Open thermal fuse
e. When the heat roller temperature does not reach 190°C within 27 second after supplying the power.

(4) Fusing resistor

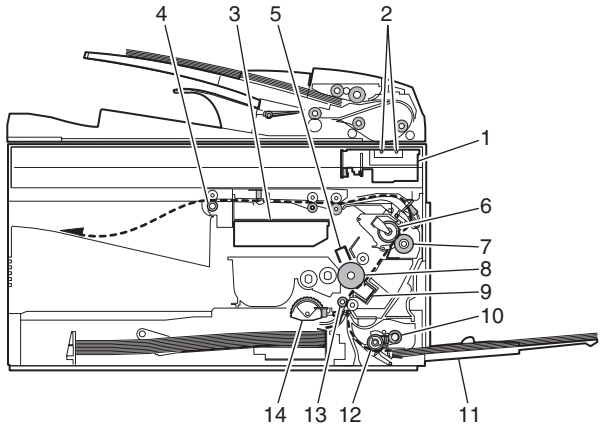
Fusing resistor

This model is provided with a fusing resistor in the fusing section to improve transfer efficiency.

Since the upper heat roller is conductive, when using copy paper that contains moisture and the distance between the transfer unit and the fusing unit is short, the transfer current may find a path to ground via the copy paper, the upper heat roller and the discharging brush.

5. Paper feed section and paper transport section

A. Paper transport path and general operations



1	Scanner unit	8	Drum
2	Copy lamp	9	Transfer unit
3	LSU (Laser unit)	10	Pickup roller
4	Paper exit roller	11	Manual paper feed tray
5	Main charger	12	Manual paper feed roller
6	Heat roller	13	PS roller unit
7	Pressure roller	14	Paper feed roller

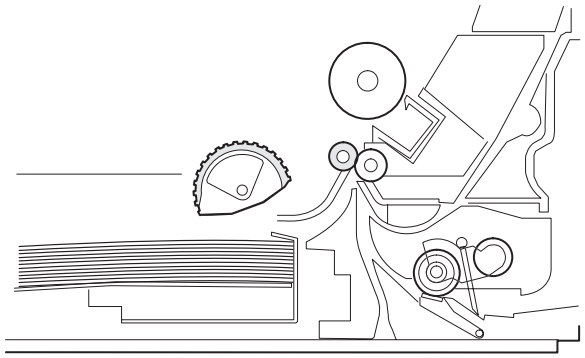
Paper feed is made in two ways; the tray paper feed and the manual paper feed. The tray is of universal-type, and has the capacity of 250 sheets.

The front loading system allows you to install or remove the tray from the front cabinet.

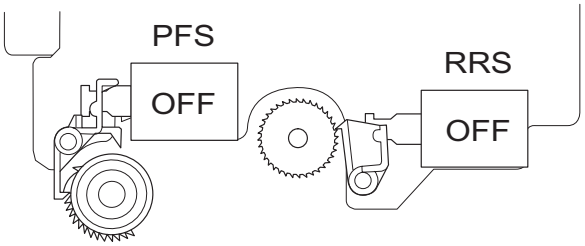
The general descriptions on the tray paper feed and the manual paper feed operation are given below.

(1) Cassette paper feed operation

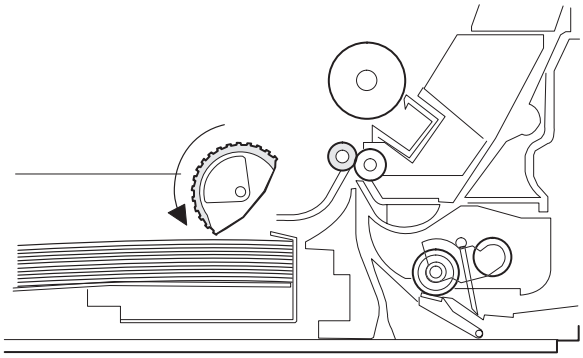
1) The figure below shows the positions of the pick-up roller, the paper feed clutch sleeve, and the paper feed latch in the initial state without pressing the COPY button after lighting the ready lamp.
The paper feed latch is in contact with the projection of the clutch sleeve.

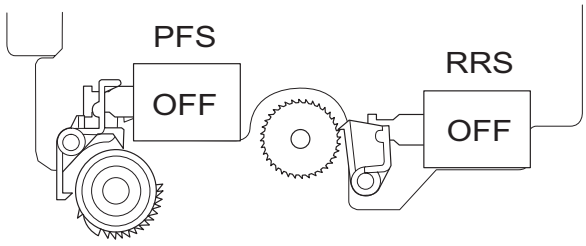


2) When the COPY button is pressed, the main drive motor starts rotating to drive each drive gear.
The pick-up drive gear also is driven at that time. Since, however, the paper feed latch is in contact with the projection of the clutch sleeve, rotation of the drive gear is not transmitted to the pick-up roller, which does not rotate therefore.



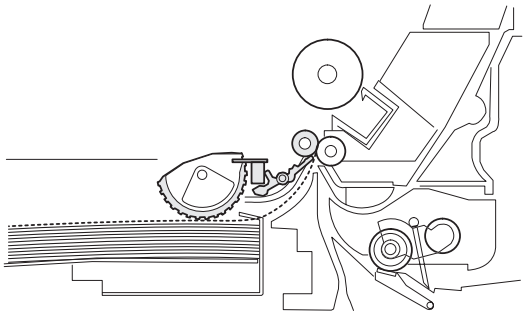
3) After about 0.1 sec from when the main motor start rotating, the tray paper feed solenoid (PFS) turns on for a moment.
This disengages the paper feed latch from the projection of the clutch sleeve, transmitting rotation of the pick-up drive gear to the paper feed roller shaft, rotating the pick-up roller to feed the paper.

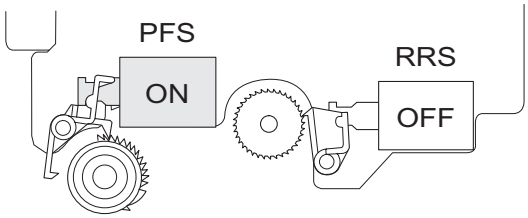




4) After more than half rotation of the pick-up roller, the paper feed latch is brought in contact with a notch on the clutch sleeve, stopping rotation of the pick-up roller.

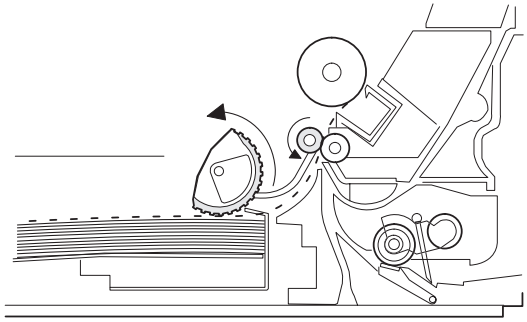
5) At this time, the paper is fed passed the paper entry detection switch (PPD1), and detected by it. After about 0.15 sec from detection of paper by PPD1, the tray paper feed solenoid (PFS) turns on so that the clutch sleeve projection comes into contact with the paper feed latch to stop the pick-up roller. Then the pick-up roller rotates for about 0.15 sec so that the lead edge of the paper is evenly pressed on the resist roller, preventing against skew feeding.

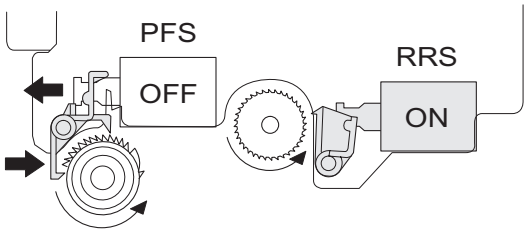




6) To release the resist roller, the tray paper feed solenoid and the resist solenoid are turned on by the paper start signal to disengage the resist start latch from the clutch sleeve, transmitting rotation of the resist drive gear to the resist roller shaft. Thus the paper is transported by the resist roller.

7) After the resist roller starts rotating, the paper is passed through the pre-transfer guide to the transfer section. Images are transferred on the paper, which is separated from the OPC drum by the drum curve and the separation section.

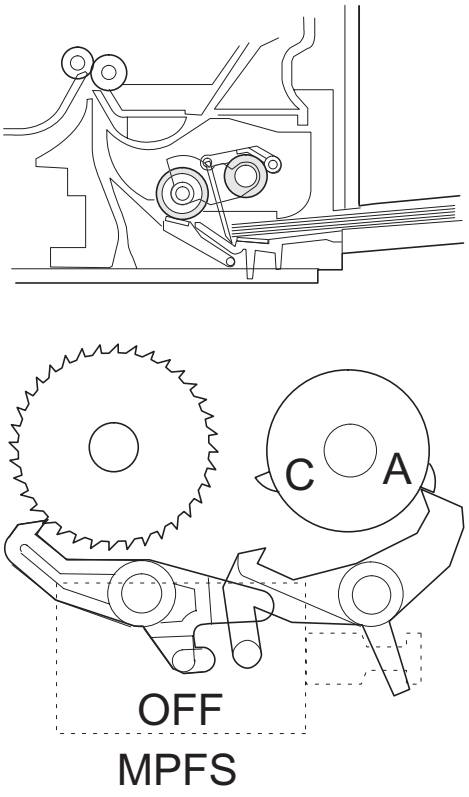




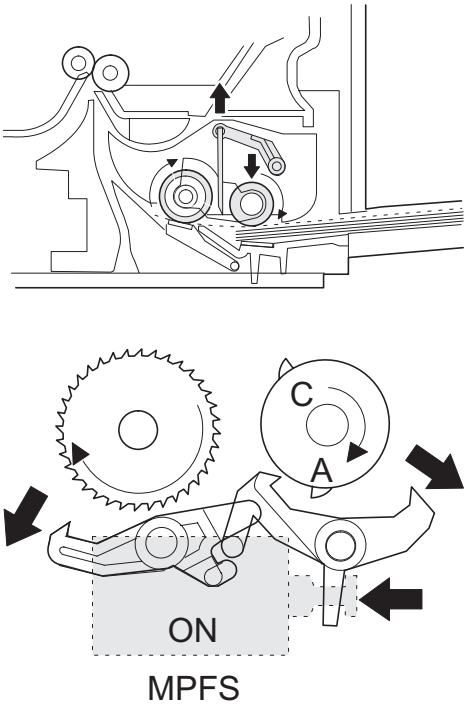
8) The paper separated from the drum is passed through the fusing paper guide, the heat roller (fusing section), POD (paper out detector) to the copy tray.

(2) Manual multi paper feed operation

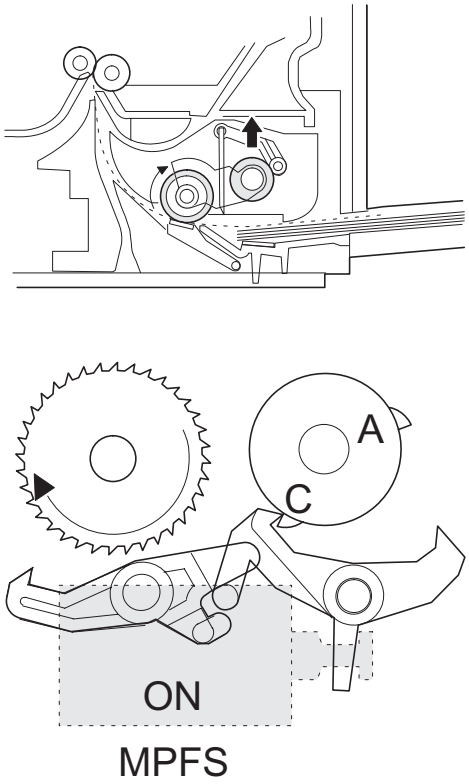
1) Before paper feed operation, the manual paper feed solenoid (MPFS) is turned OFF as shown in the figure below.



2) When the PRINT button is pressed, the manual paper feed solenoid (MPFS) turns on to disengage the manual paper feed latch.
A from the manual paper feed clutch sleeve A, rotating the manual paper feed roller and the manual take-up roller. At the same time, the manual paper feed stopper opens and the manual take-up roller is pressed to the surface of the paper to start paper feeding.

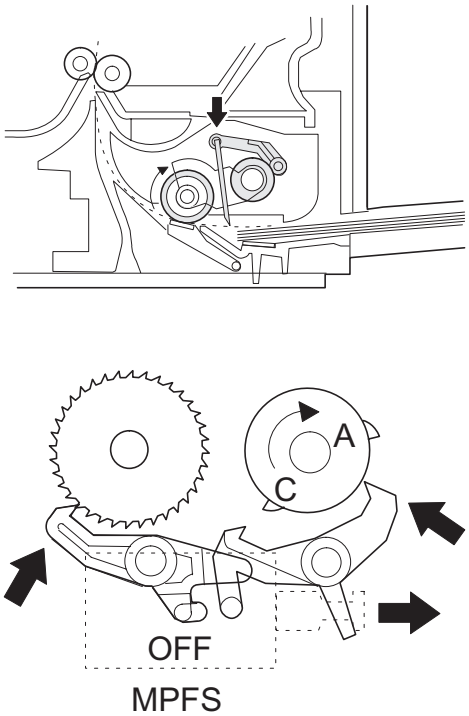


3) When pawl C of the manual paper feed clutch sleeve is engaged with the manual feed latch, the manual feed stopper falls and the manual take-up roller rises. At that time, the manual paper feed roller is rotating.



4) The lead edge of the transported paper is pressed on the resist roller by the transport roller. Then the paper is stopped temporarily to allow synchronization with the lead edge of the image on the OPC drum.
From this point, the operation is the same as the paper feed operation from the tray. (Refer to A-5 - 8.)

5) The solenoid turns off to close the gate and return to the initial state.



(3) Conditions of occurrence of paper misfeed

a. When the power is turned on:

PPD or POD is ON when the power is turned on.

b. Copy operation

a	PPD1 jam	PPD1 does not turn off within 4 sec after turning on the resist roller.
b	PPD2 jam	PPD2 is off immediately after turning on the resist roller.
		PPD2 does not turn off within 1.2 sec after turning off the resist roller.
c	POD jam	POD does not turn on within 2.9 sec after turning on the resist roller.
		POD does not turn off within 1.5 sec - 2.7 sec after turning off PPD2.

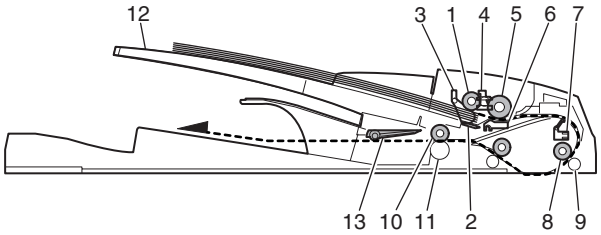
6. RSPF section

A. Outline

The RSPF (Reverse Single Path Feeder) is installed to the AR-168D and the SPF (single path feeder) is installed to the AR-168S as a standard provision, and it automatically copies up to 30 sheets of documents of a same size. (Only one set of copies)

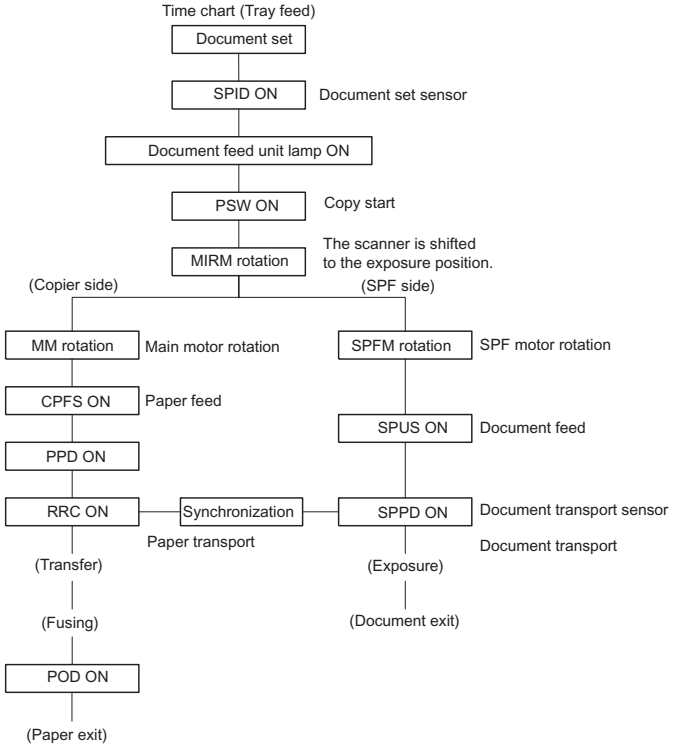
B. Document transport path and basic composition

(RSPF)

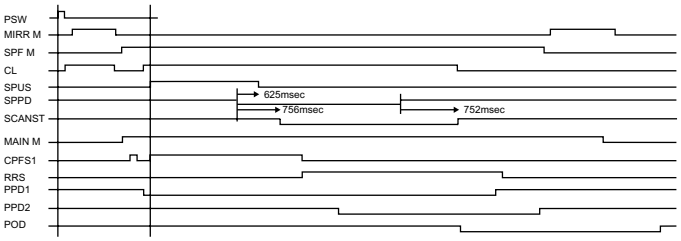


1	Pickup roller	2	Sheet of document for paper feed
3	Set detection ACT	4	Paper stopper
5	Document feed roller	6	Separation sheet
7	Paper entry sensor	8	PS roller D
9	Transport follower roller	10	Paper exit roller
11	Paper exit follower roller	12	Document tray
13	Switch gate		

C. Operational descriptions



In the zooming mode, the magnification ratio in the sub scanning direction (paper transport direction) is adjusted by changing the document transport speed.

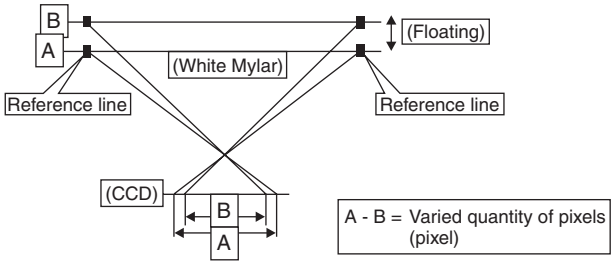


D. Cases where a document jam is caused

1) When SPPD is ON (document remaining) when the power is turned on.
2) When SPPD is not turned ON within about 1.5 sec (at 100% copy) after starting the document feed operation.
3) When SPPD is not turned on within about 4.7 sec (at 100% copy) after turning on SPPD.
4) When the RSPF document jam release door or the OC cover is opened during document transport (SPF motor rotating).

E. RSPF open/close detection (book document detection)

RSPF open/close detection (book document) detection is performed by detecting the interval between the reference lines on the white Mylar attached to the paper exit guide (document scanning section) by the scanner (CCD) and detecting the varied quantity.



7. D-D (Duplex to Duplex) mode paper/ document transport (Duplex model)

A. Initial state

Set duplex documents on the document tray.

Set paper on the cassette. (In the duplex mode, the manual feed tray cannot be selected.)

B. Front copy

Document transport:

The document feed roller feeds the document from the paper feed roller to the PS roller.

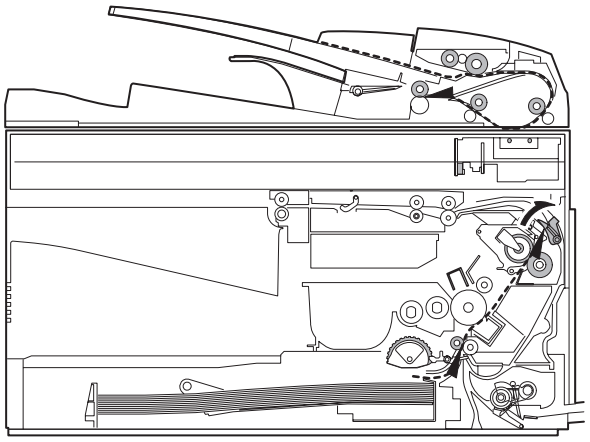
- The document is exposed in the exposure section, and sent to the document exit section
- by the transport/paper exit roller.
- R-SPF gate solenoid ON
- The document is sent to the intermediate tray. (but not discharged completely.)
- The document is stopped once, then switchback operation is performed. (To the back copy)

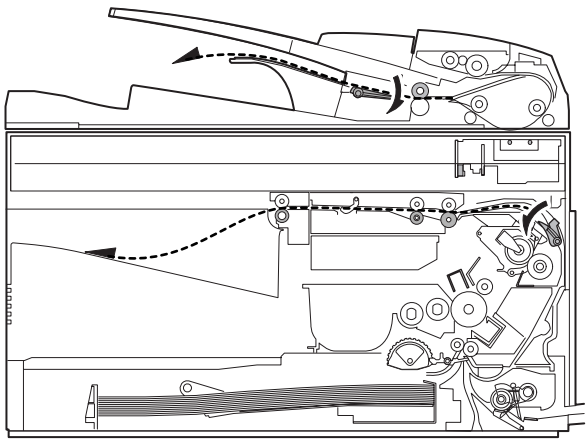
Paper transport:

The document is passed through the paper feed roller and the PS roller by the paper feed roller

and the images on the front surface are transferred.

- The paper is passed through the fusing section and the lower side of the gate section to the paper exit tray side, (but not discharged completely.)
- It is stopped once and switchback operation is performed. (To the back copy)





C. Back copy

Document transport:

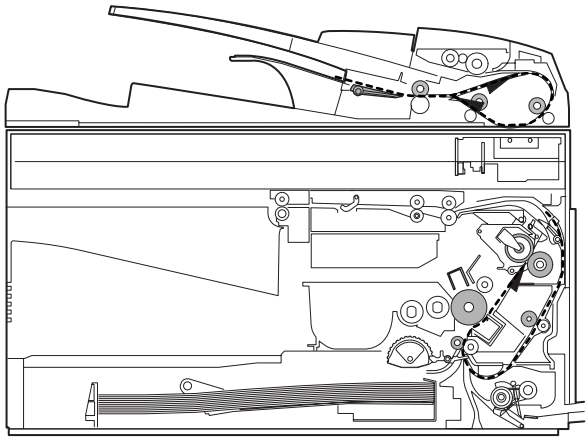
By switchback operation, the document is sent through the PS roller to the exposure section, where the back of the document is exposed.

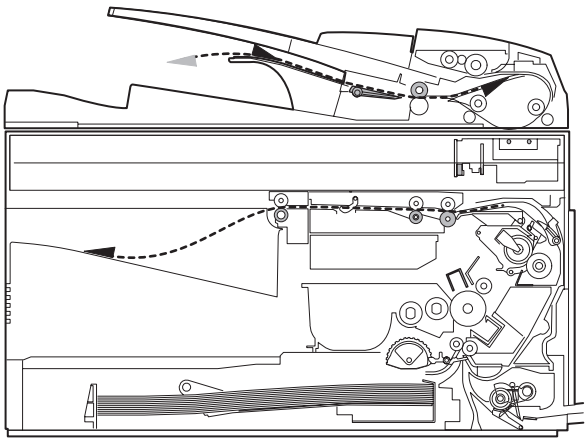
- It is sent to the document exit section by the transport roller and the paper exit roller.
- R-SPF gate solenoid ON. The document is sent to the intermediate tray, (but not discharged completely.)
- It is stopped once and switchback operation is performed.
- It is sent through the PS roller and the exposure section (without exposure operation) to the document exit section.
- R-SPF gate solenoid OFF
- The document is discharged to the document exit tray.

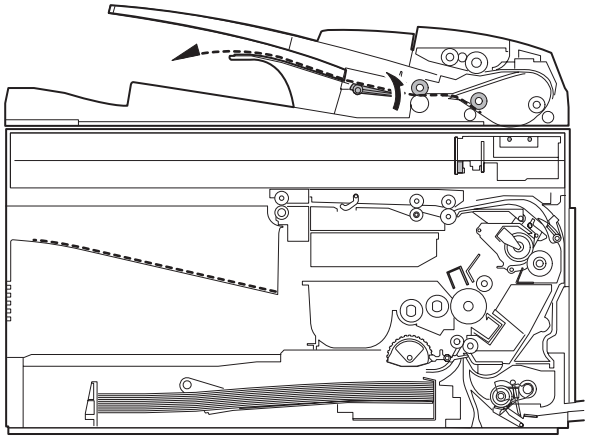
Paper transport:

Switchback operation is performed.

- The paper is sent through the upper side of the gate section and the duplex transport section, and the PS roller, and the images on the back are transferred.
- It is sent through the fusing section and discharged to the paper exit tray.







Switchback operation is made after back copying in order to discharge documents according to the setting.

Set document Documents after discharge,

$\frac{1}{2}$ with empty feed $\frac{4}{3}$ without empty feed $\frac{3}{4}$

$\frac{3}{4}$ $\frac{2}{1}$ $\frac{1}{2}$

There are following job modes as well as D-D mode.

S - S (Simplex to Simplex)

S - D (Simplex to Duplex),

Rotation copy mode (The back images are rotated 180°C.)

S - D (Simplex to Duplex), Copy mode without rotation

D - S (Duplex to Simplex)

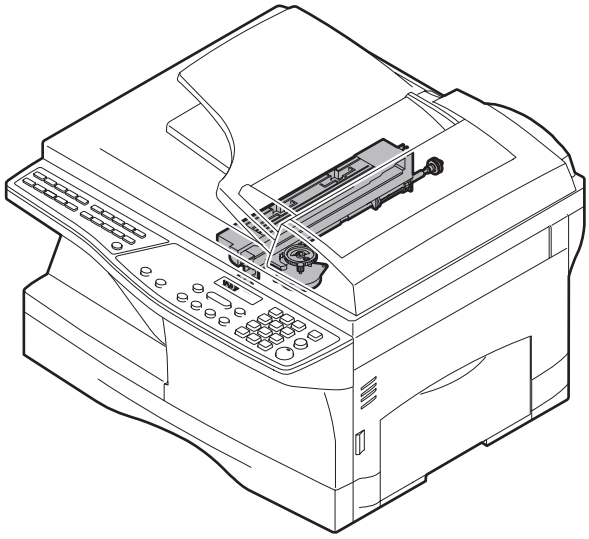
Rotation copy mode:

The front and the back are in upside down each other.

Copy mode without rotation:

The front and the back are not in upside down.

8. Shifter



Shift width: 2.5cm

The offset function by the shifter is turned ON/OFF by the user program.

According to the setting, offset operation is performed for every job. (Default: ON)

[8] DISASSEMBLY AND ASSEMBLY

Before disassembly, be sure to disconnect the power cord for safety.

1. **Do not disconnect or connect the connector and the harness during the machine is powered. Especially be careful not to disconnect or connect the harness between the MCU PWB and the LSU (MCU PWB: CN20) during the machine is powered. (If it is disconnected or connected during the machine is powered, the IC inside the LSU will be destroyed.)**
2. **To disconnect the harness after turning on the power, be sure to turn off the power and wait for at least 10 sec before disconnection. (Note that a voltage still remains immediately after turning off the power.)**

The disassembly and assembly procedures are described for the following sections:

1. High voltage section
2. Operation panel section
3. Optical section
4. Fusing section
5. Tray paper feed/transport section
6. Manual paper feed section
7. Rear frame section
8. Power section
9. Duplex motor section
10. Reverse roller section
11. RSPF section

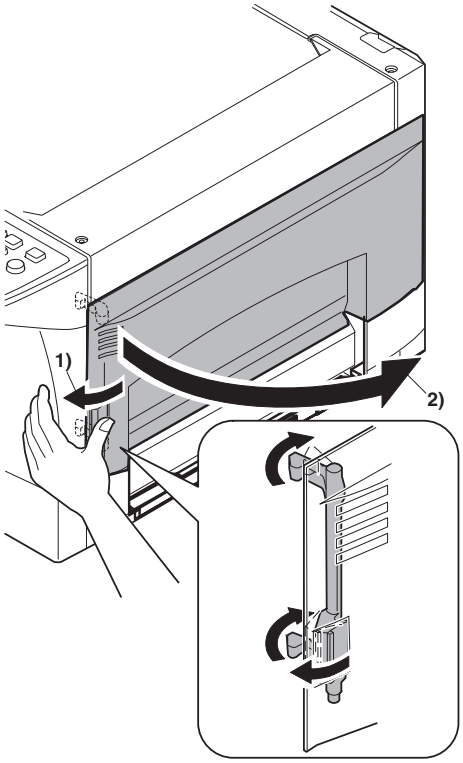
1. High voltage section

A. List

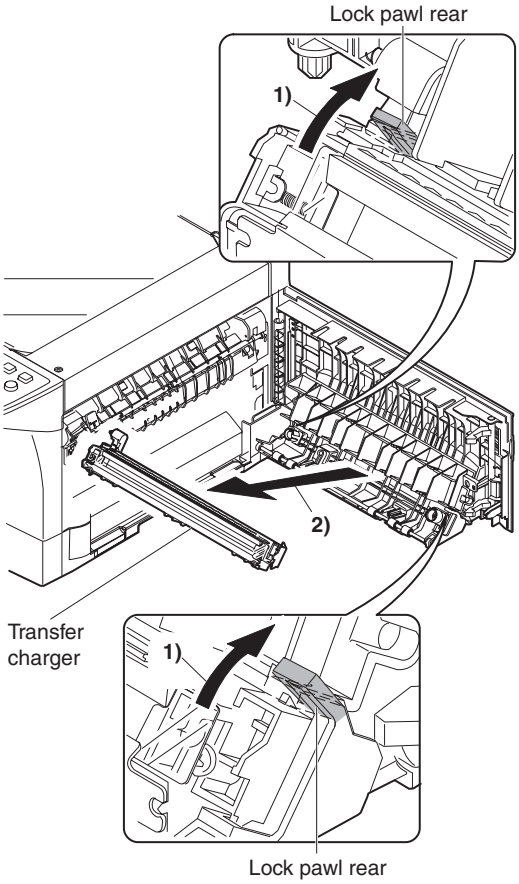
No.	Part name Ref.
1	Transfer charger unit
2	Charger wire

B. Disassembly procedure

1) Press the side cover open/close button and open the side cover.



2) Push up the lock pawls (2 positions) of the side cover, and remove the transfer charger.

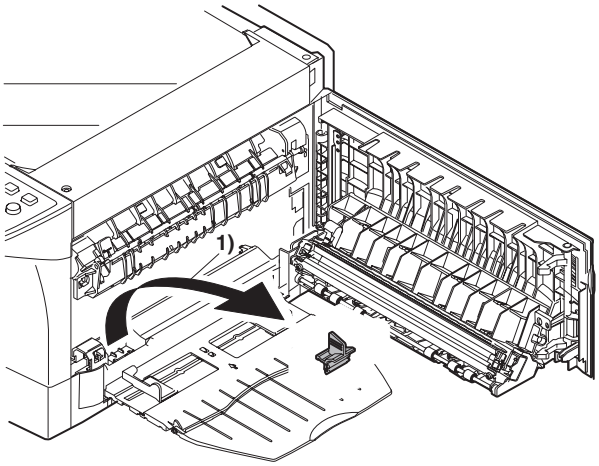


C. Assembly procedure

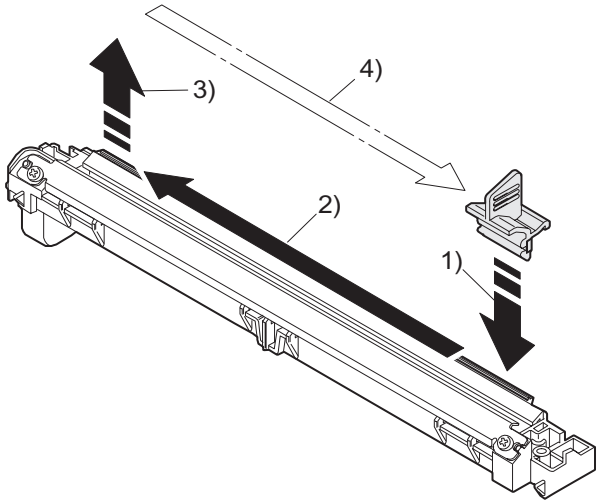
For assembly, reverse the disassembly procedure.

D. Charger wire cleaning

1) Remove the charger cleaner from the manual paper feed unit.



2) Set the charger cleaner to the transfer unit, and move it reciprocally a few times in the direction of the arrow shown in the figure below.



E. Charger wire replacement

1) Remove the TC cover and remove the screw.
2) Remove the spring and remove the charger wire.
3) Install a new charger wire by reversing the procedures (1) and (2). At that time, be careful of the following items.

- The rest of the charger wire must be within 1.5mm. Refer to Fig.1
- The spring hook section (charger wire winding section) must be in the range of the projection section.
- Be careful not to twist the charger wire.

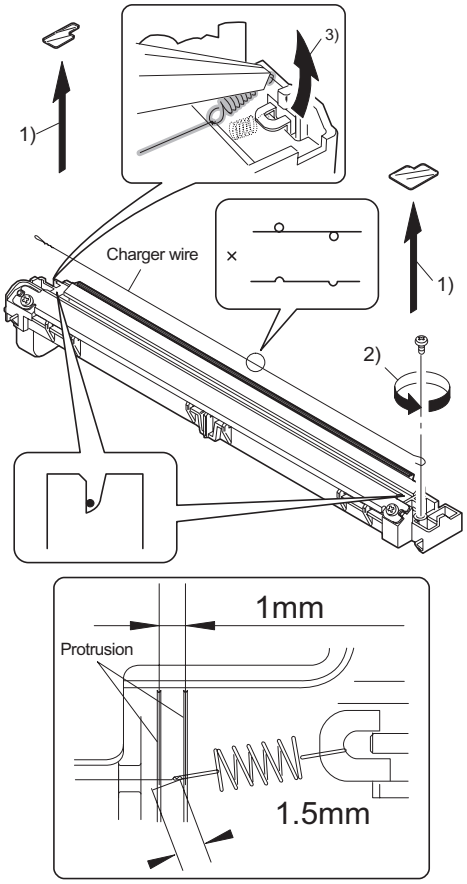


Fig.1

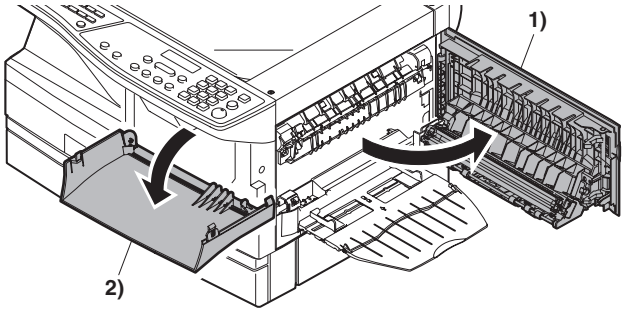
2. Operation panel section

A. List

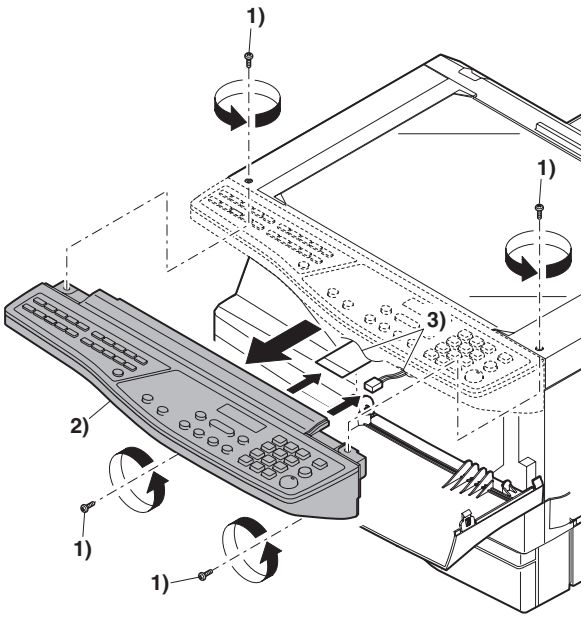
No.	Part name Ref.
1	Operation panel unit
2	Operation PWB

B. Disassembly procedure

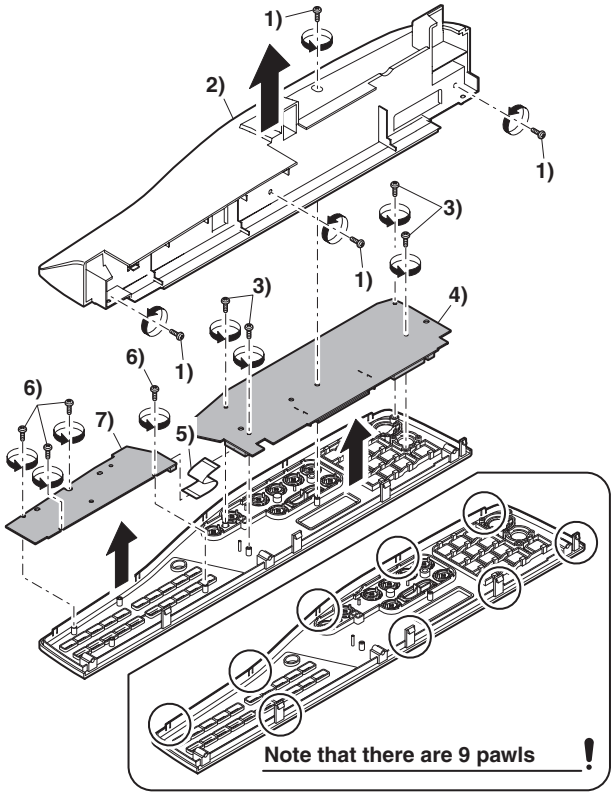
1) Open the side door, and Open the front cover.



2) Remove the screws (4 pcs.), the harness, and the operation panel unit.



3) Remove four screws, and remove the operation cabinet.
4) Remove four screws, and remove the operation PWB.



C. Assembly procedure

For assembly, reverse the disassembly procedure

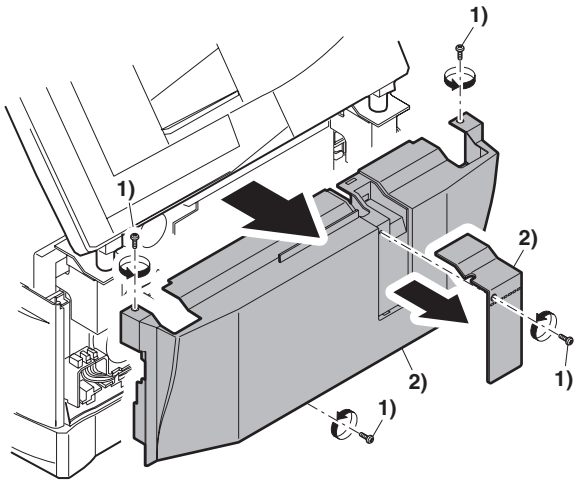
3. Optical section

A. List

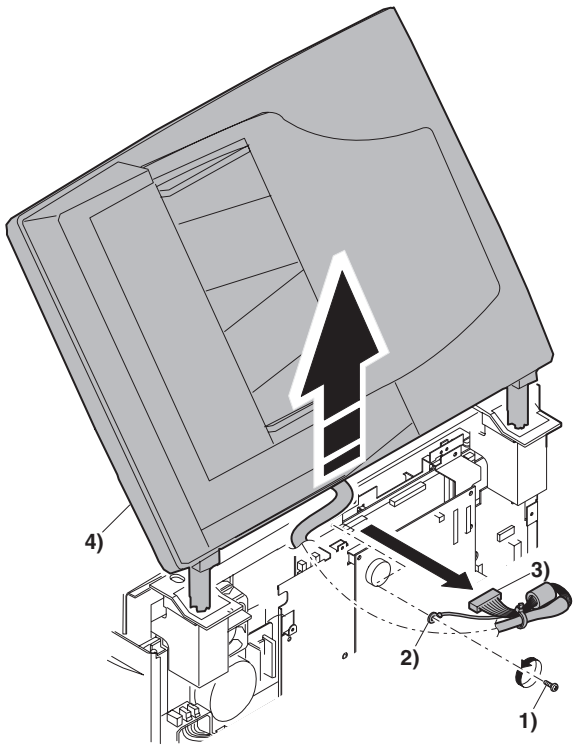
NO.	Part name Ref.
1	Copy lamp unit
2	Copy lamp
3	Lens unit

B. Disassembly procedure

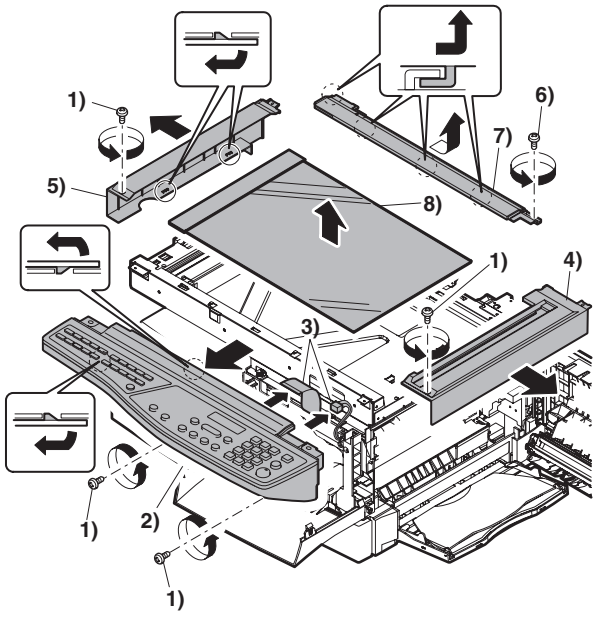
1) Remove four screws, and remove the rear cabinet and the rear cabinet cover.



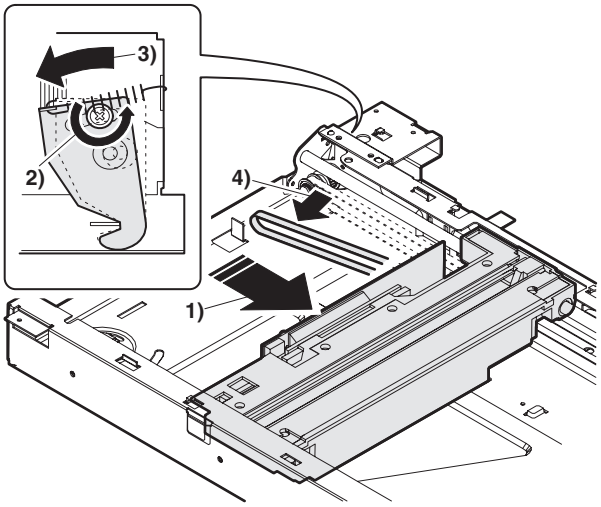
2) Remove the connector and the clamp, and remove the RSPF unit.



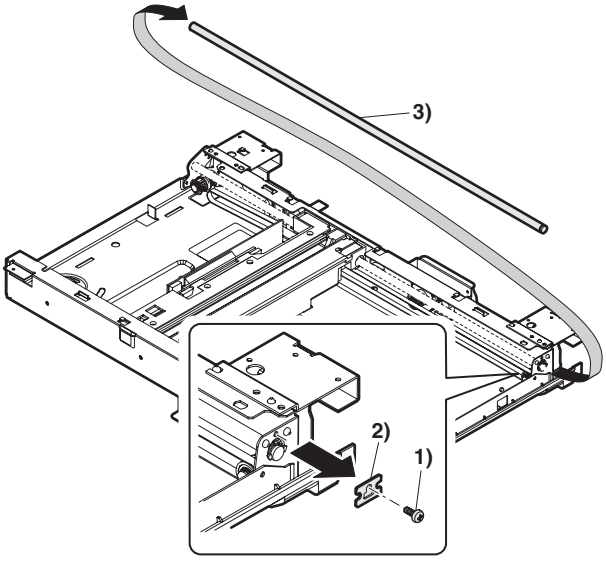
3) Remove the four screws, remove the operation unit, and disconnect the connector.
4) Remove the right cabinet.
5) Remove the left cabinet.
6) Remove the screw, and remove the rear cover.
7) Remove the table glass.



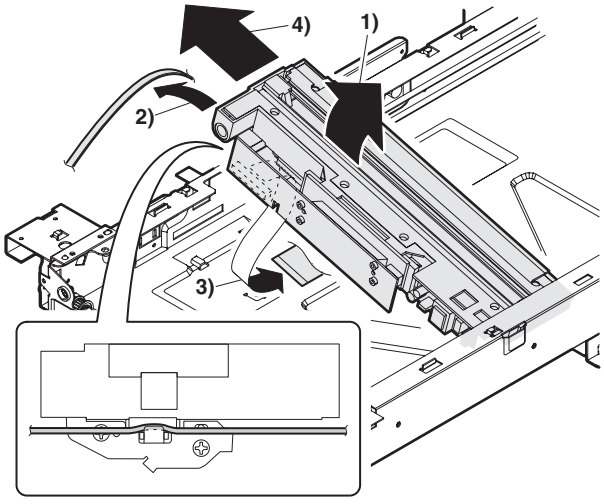
8) Move the carriage to the position indicated on the figure.
9) Loosen the screw which is fixing the tension plate.
10) Move the tension plate in the arrow direction to release the tension, and remove the belt.



11) Remove the screw, and remove the rod stopper.
12) Remove the rod.



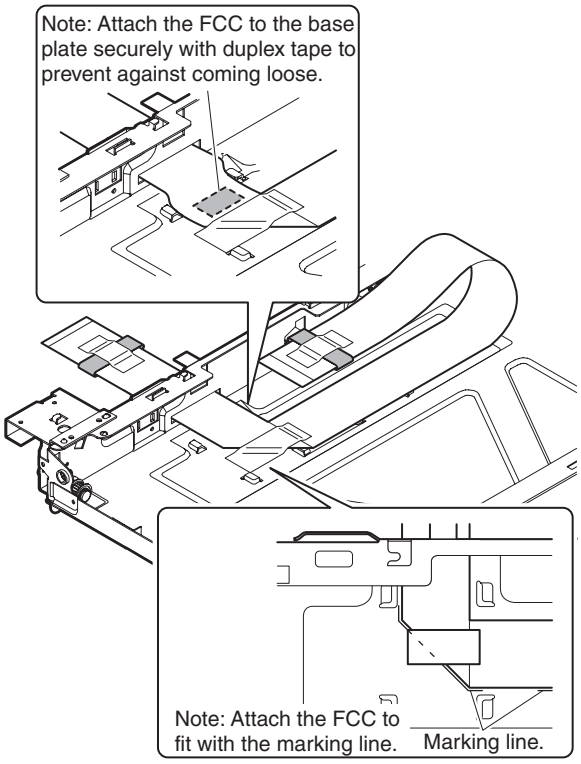
13) Lift the rear side of the carriage, remove the belt and the connector, and remove the carriage.

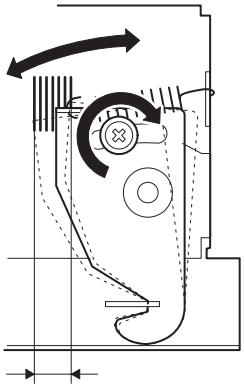


C. Assembly procedure

CCD core

1) Pass the core through the CCD-MCU harness.
2) Insert the CCD-MCU harness into the CCD PWB connector of the carriage unit.
3) Move the core which was passed through the CCD-MCU harness near the CCD PWB connector as shown in the figure below, and fix it with a filament tape (19mm wide, 40mm long). For the attachment reference, refer to the figure below. Clean and remove oil from the attachment section.
4) Attach the CCD-MCU harness to the duplex tape on the back of the carriage unit.
5) Attach the PWB holder to the position specified in the figure below.
6) Pass the core through the FFC and the PWB holder, and fix the core.


Note: Attach the FCC to the base plate securely with duplex tape to prevent against coming loose.
Note: Attach the FCC to fit with the marking line.
Marking line.



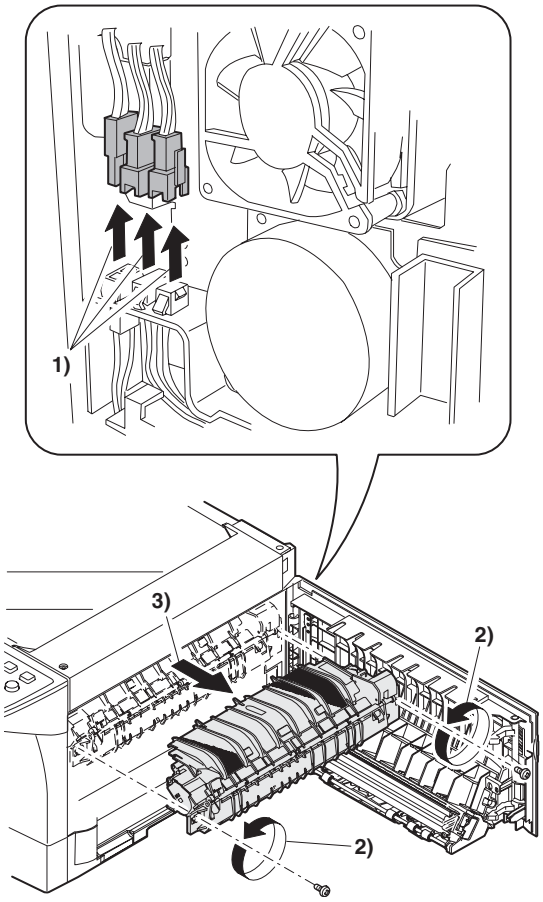
4. Fusing section

A. List

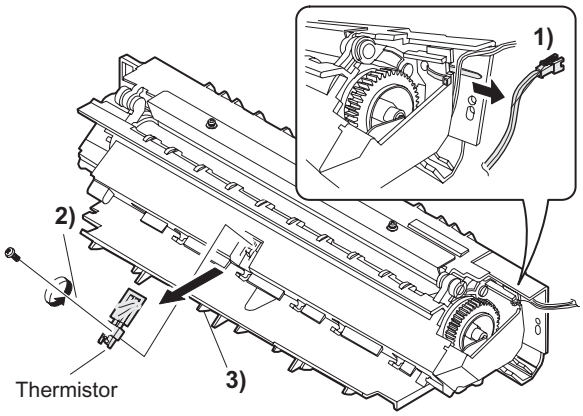
No.	Part name Ref.
1	Thermistor
2	PPD2 sensor
3	Heater lamp
4	Pressure roller
5	Heat roller

B. Disassembly procedure

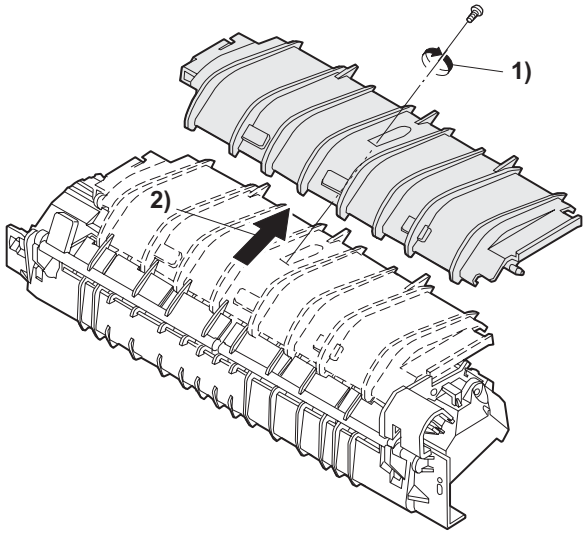
1) Remove the connectors (3 pcs.) of the rear cabinet.
2) Open the side cover, remove two screws, and remove the fusing unit.



3) Cut the binding band, remove the screw, and remove the thermistor.

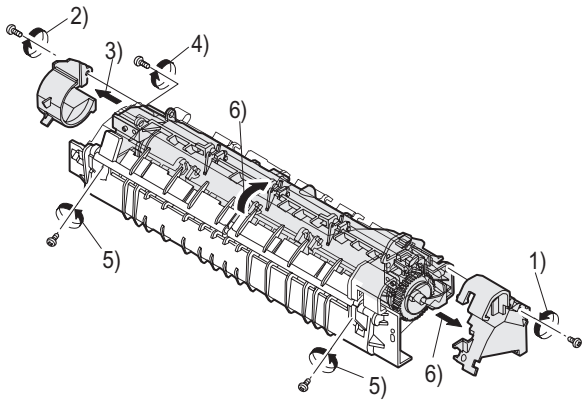


4) Remove the screw and remove the U-turn guide.

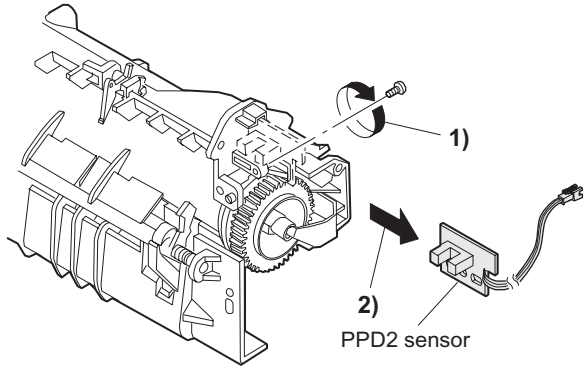


Pressure roller section disassembly

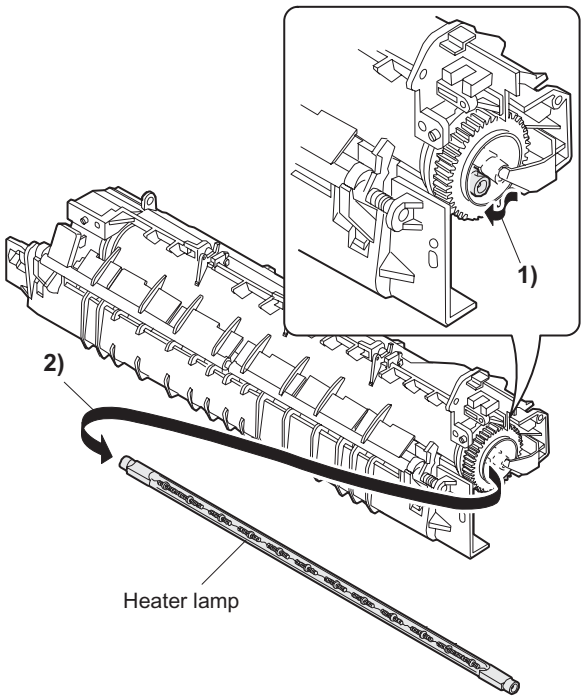
5) Remove the three screws, remove the fusing cover lower on the right side, and open the heat roller section.



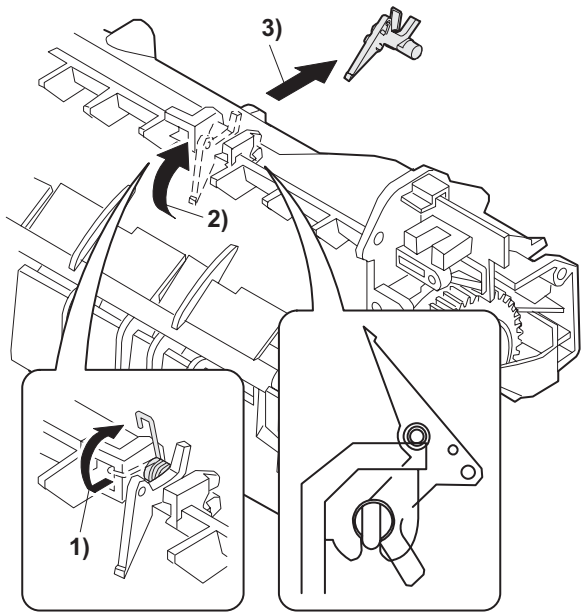
6) Remove the screw and remove the PPD2 sensor.



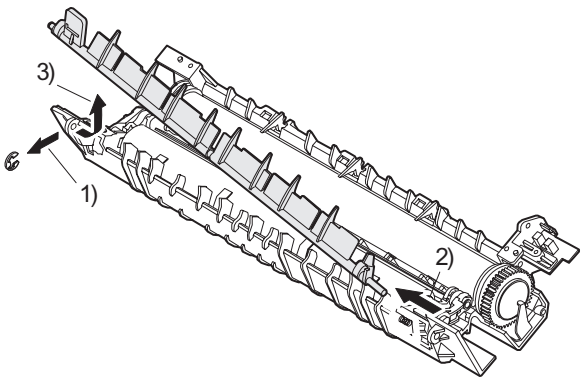
7) Remove the plate spring on the right and remove the heater lamp.



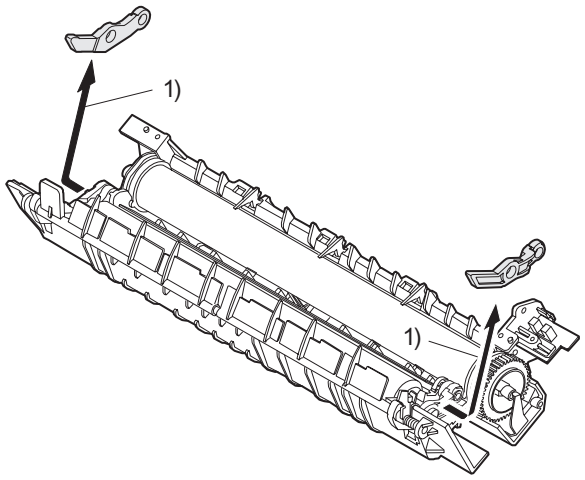
8) Remove the spring and remove the separation pawls (3 pcs.).



9) Remove the E-ring and remove the reverse gate.

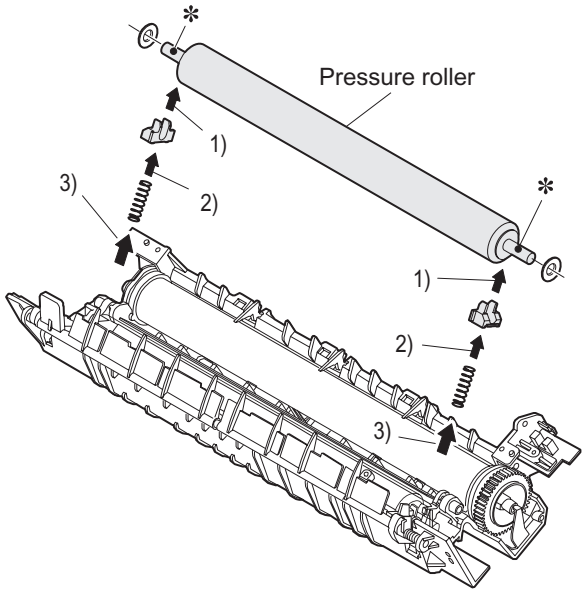


10) Remove the pressure release levers on the right and the left sides.



11) Remove the pressure roller, the pressure bearing, and the spring.

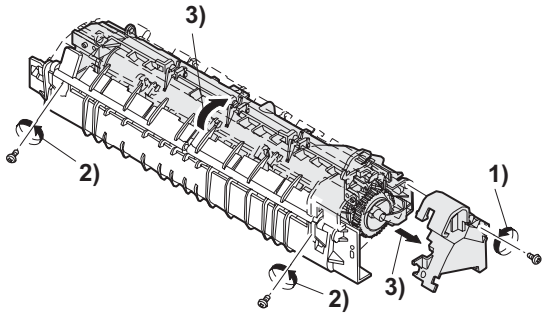
Note: Apply grease to the sections specified with an asterisk (*).
Grease: “JFE552” UKOG-0235FCZZ



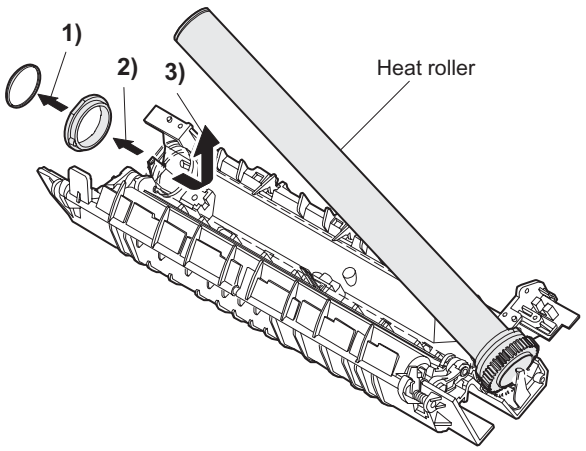
Heat roller disassembly

(Continued from procedure (4).)

5) Remove screws, remove the fusing cover, and open the heat roller section.

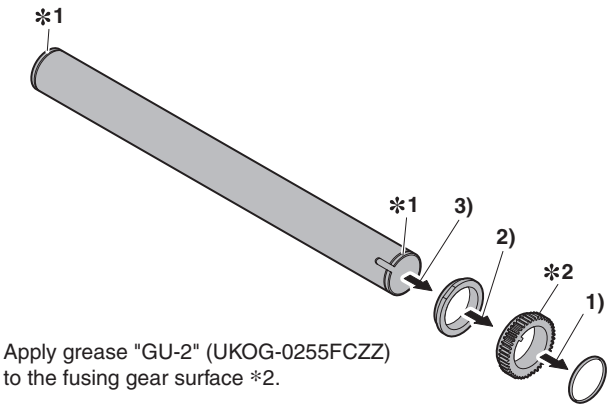


6) Remove the C-ring and the fusing bearing, and remove the heat roller.

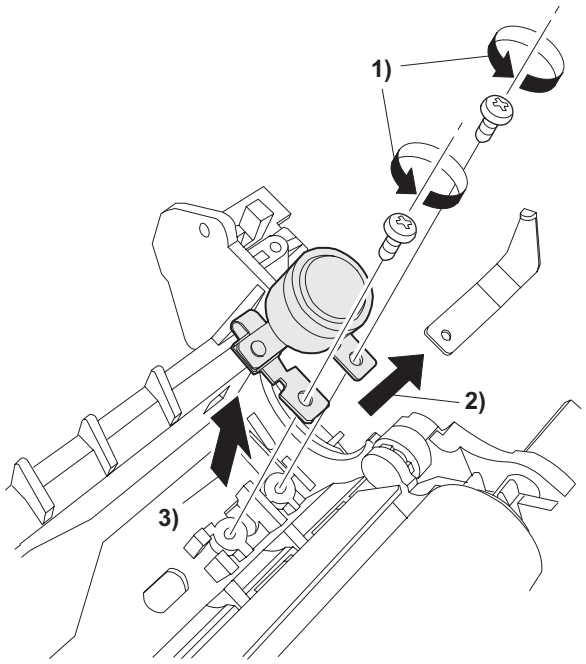


7) Remove the parts from the heat roller.

Note: Apply grease to the sections specified with ∗1.
Grease: “JFE552” UKOG-0235FCZZ



8) Remove two screws and remove the thermo unit.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

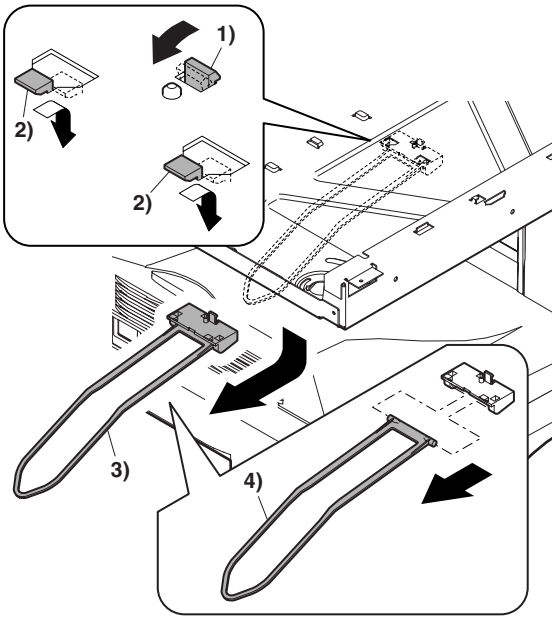
5. Tray paper feed/transport section

A. List

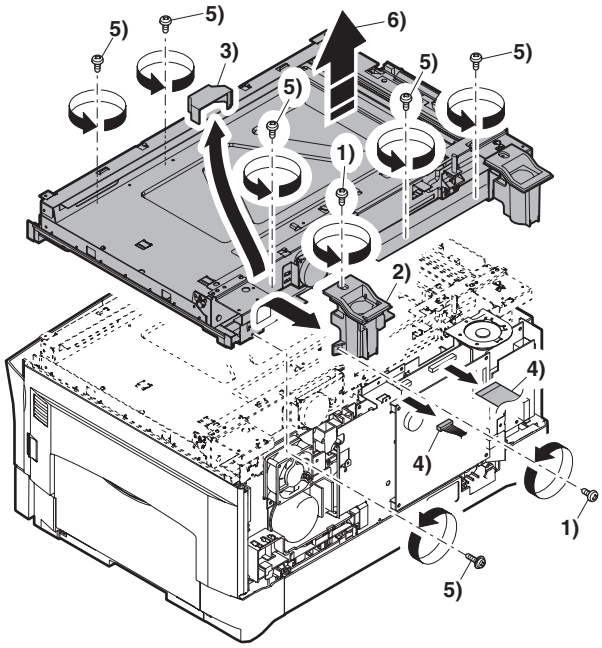
No.	Part name Ref.
1	Paper holding arm
2	PPD1 sensor PWB
3	LSU unit
4	Intermediate frame unit
5	Paper feed roller

B. Disassembly procedure

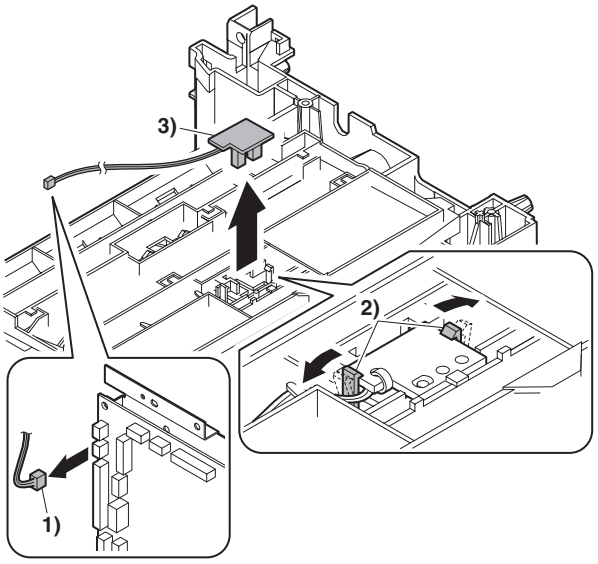
1) Remove the paper holding arm.
Remove the arm holder from the main unit, and remove the holder from the arm.



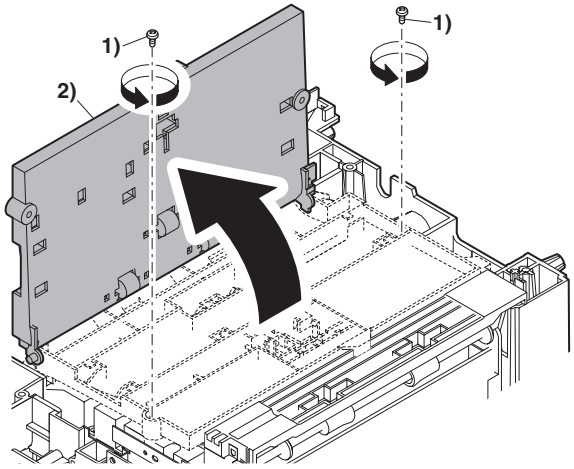
2) Remove the two screws, and remove the hinge guide R.
3) Remove the fan duct and disconnect the connector. (2 positions)
4) Remove the six screws, and remove the scanner unit.



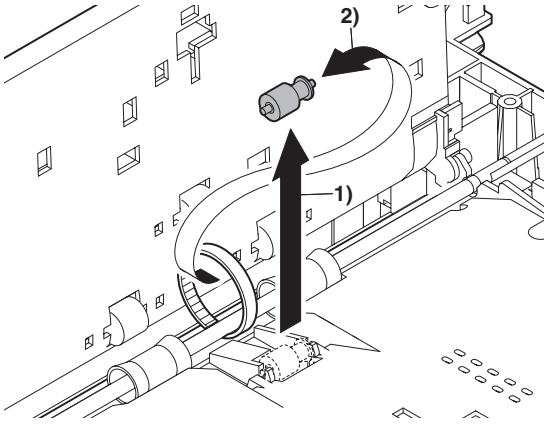
5) Disconnect the connector from the MCU PWB.
6) Disengage the pawls (2 positions), and remove the sensor PWB.



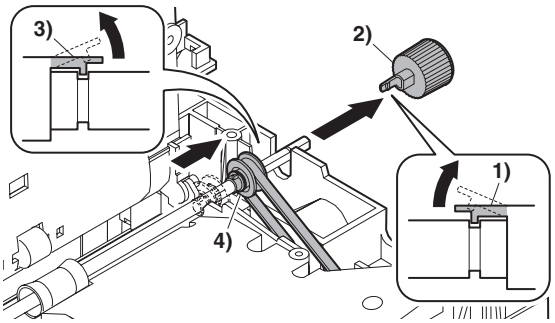
7) Remove the screw, and open the upper paper guide.



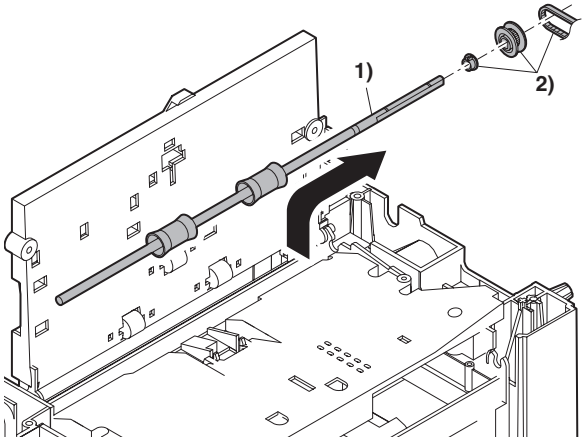
8) Remove the roller, and remove the belt.



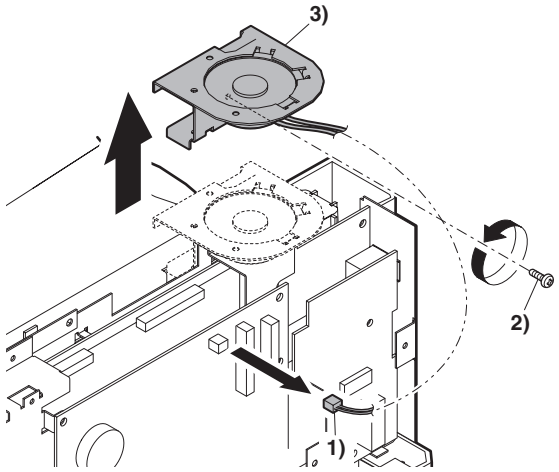
9) Disengage the pawl, and remove the roller knob.
10) Disengage the pawl, and shift the pulley and the bearing.



11) Remove the paper exit roller, and remove the belt, the pulley, and the bearing.

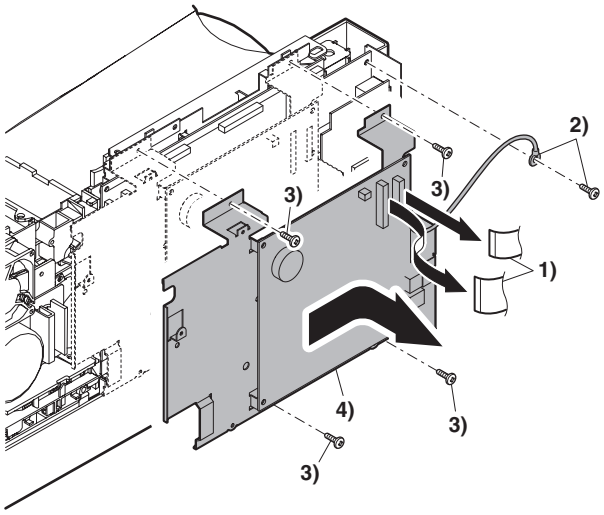


12) Remove the connector and the screw, and remove the speaker unit.



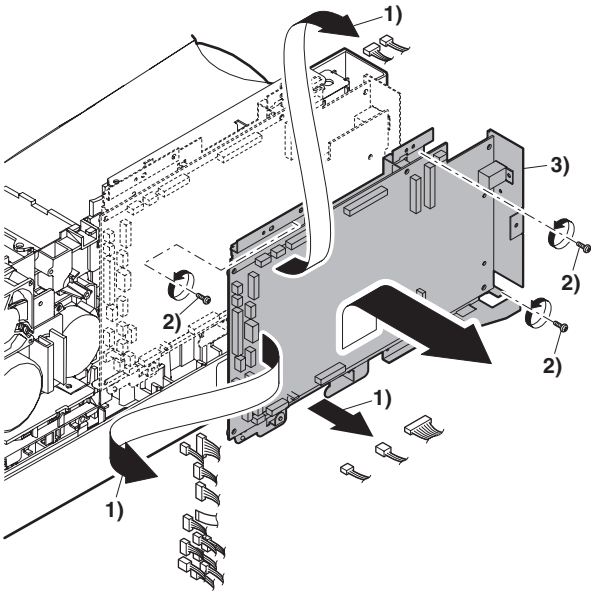
13) Remove the flat cable and the grounding wire.

14) Remove the four screws, and remove the FAX PWB unit.

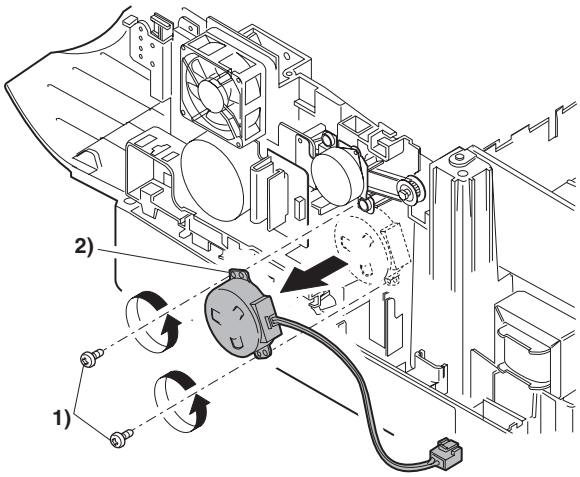


15) Disconnect the connectors.

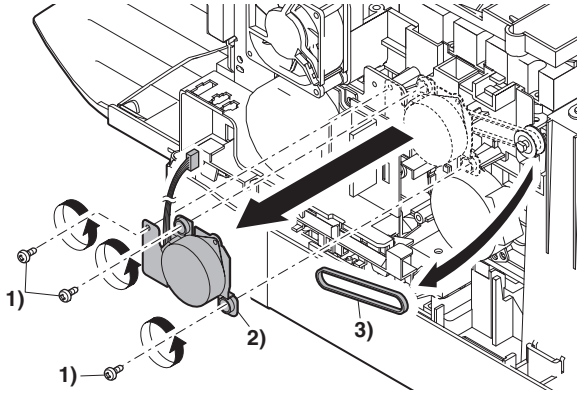
16) Remove the three screws, and remove the MCU PWB.



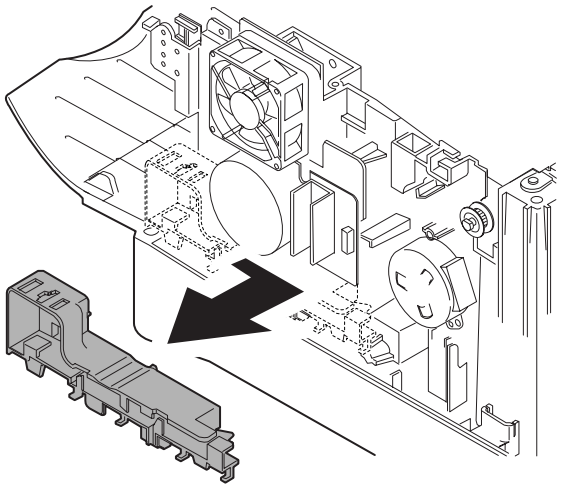
17) Remove two screws and remove the toner motor.



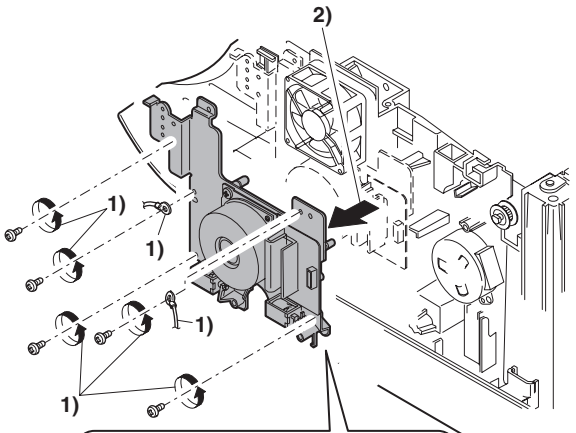
18) Remove the three screws, and remove the DUP motor unit and the belt.

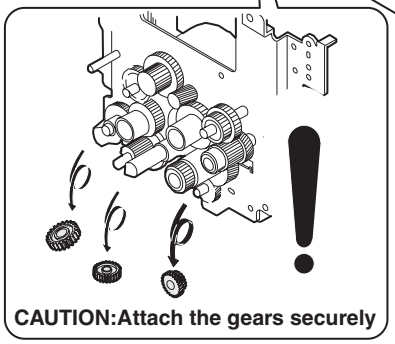


19) Remove the harness guide.

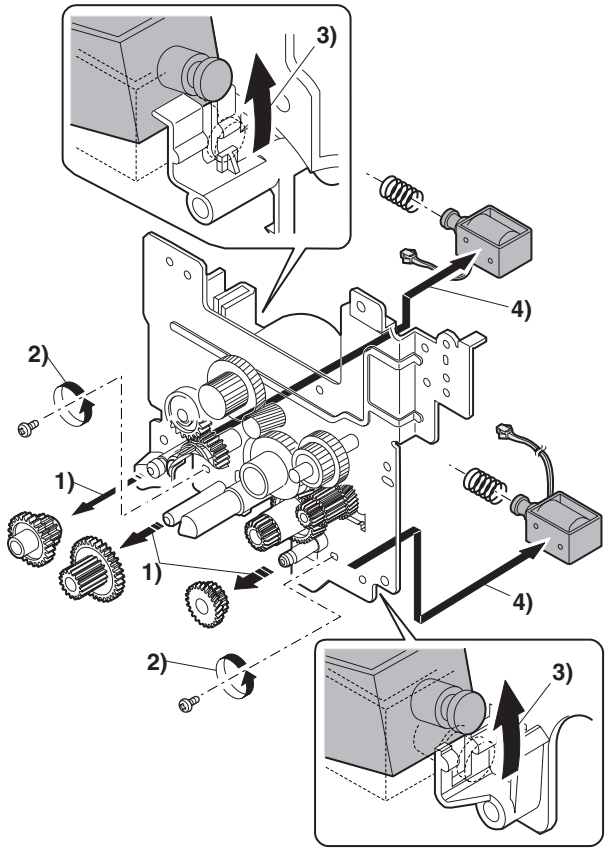


20) Remove the five screws and the grounding wire, and remove the main drive unit.

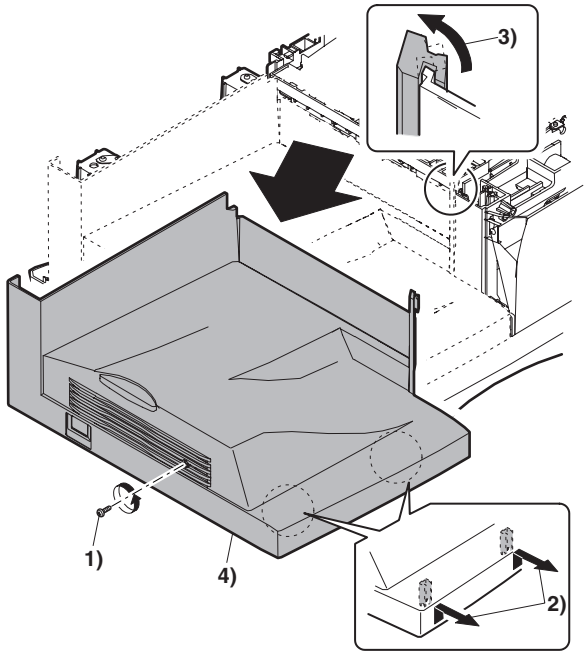




21) Remove the parts as shown below, and remove the pressure release solenoid and the paper feed solenoid.

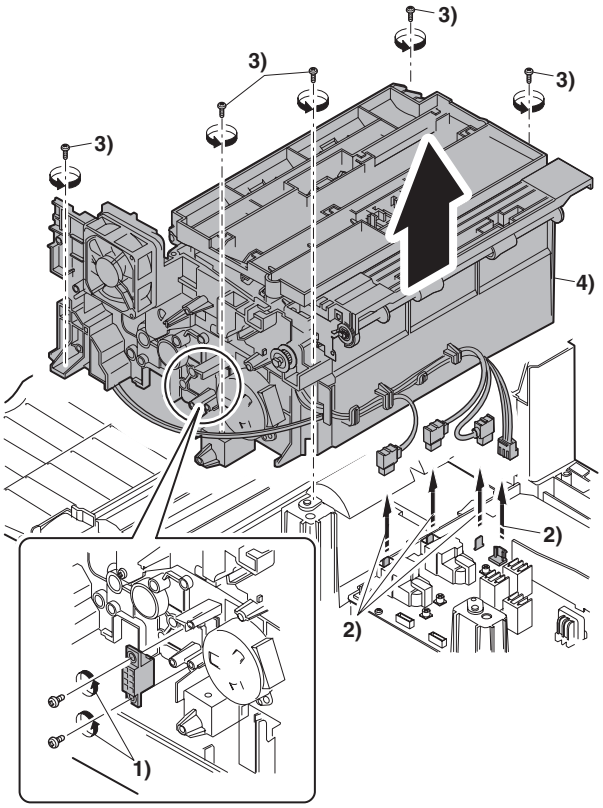


22) Remove each pawl, and remove the paper exit tray.



23) Remove two screws and remove the fusing connector.

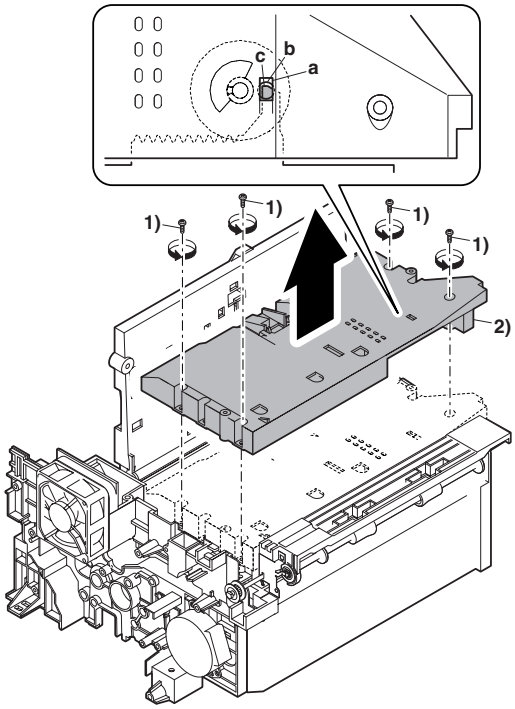
24) Remove five screws and the connector, and lift the intermediate frame unit to remove.



25) Remove the four screws, and remove the lower paper guide unit.

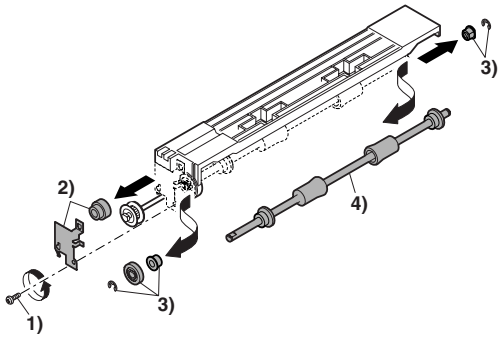
[Note for installation]

Fit the lower paper guide hole (a) with the shifter gear hole (b) so that the black resin (c) of the shifter unit can be checked.



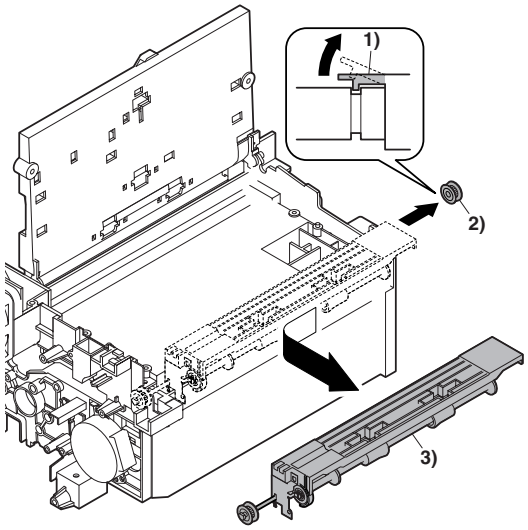
26) Disengage the pawl, and remove the pulley.

27) Shift and remove the shifter unit.

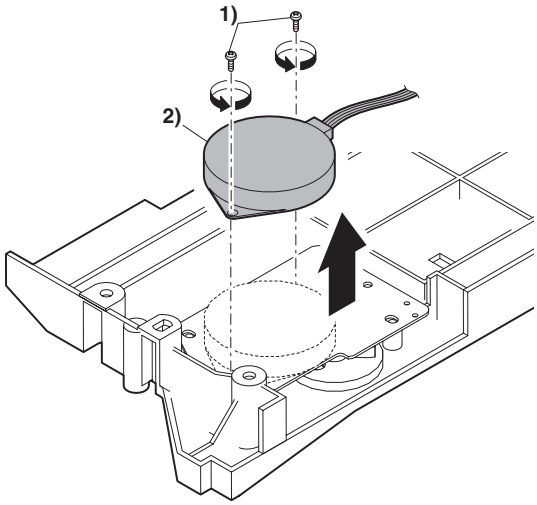


28) Remove the screw, and remove the grounding plate and the gear.

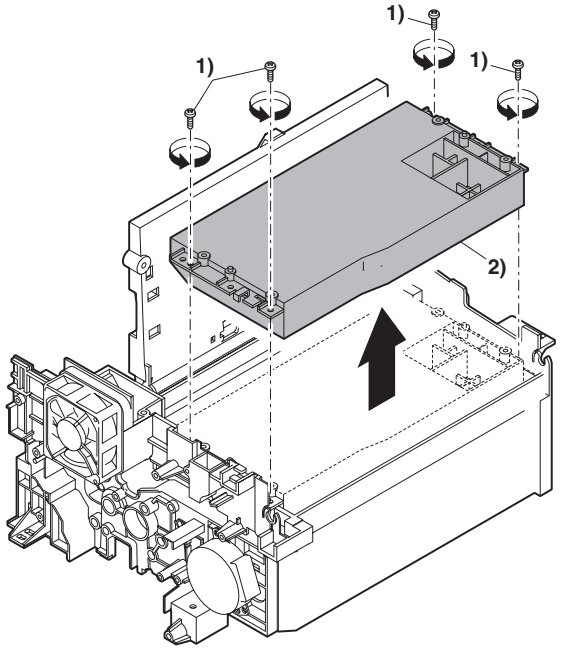
29) Remove the E-ring, the gear, and the bearing, and remove the shifter roller.



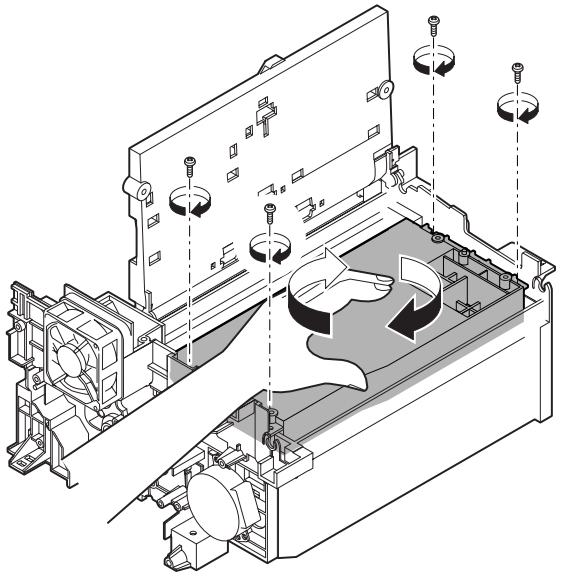
30) Put the lower paper guide unit upside down, remove the two screws, and remove the shifter motor.



31) Remove the four screws, and remove the LSU.

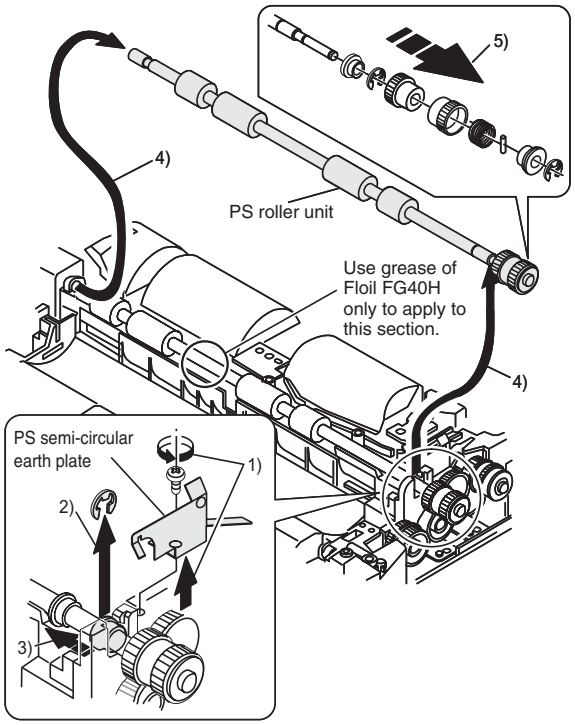


Note: When assembling, turn it to the right and attach.

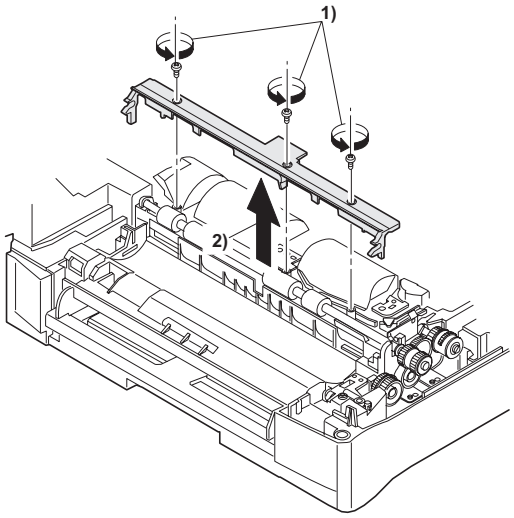


32) Remove the screw and the E-ring, and remove the PS semi-circular earth plate and the PS roller unit.

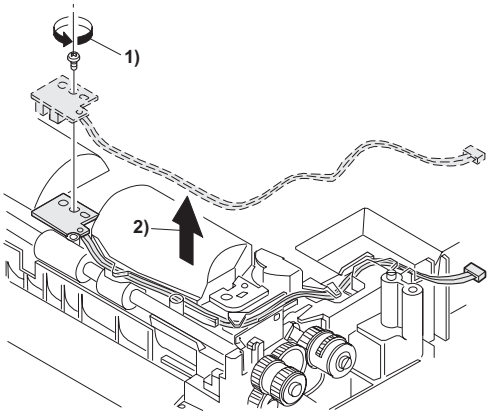
33) Remove the E-ring and remove the spring clutch from the PS roller unit.



34) Remove three screws and remove the TC front paper guide.

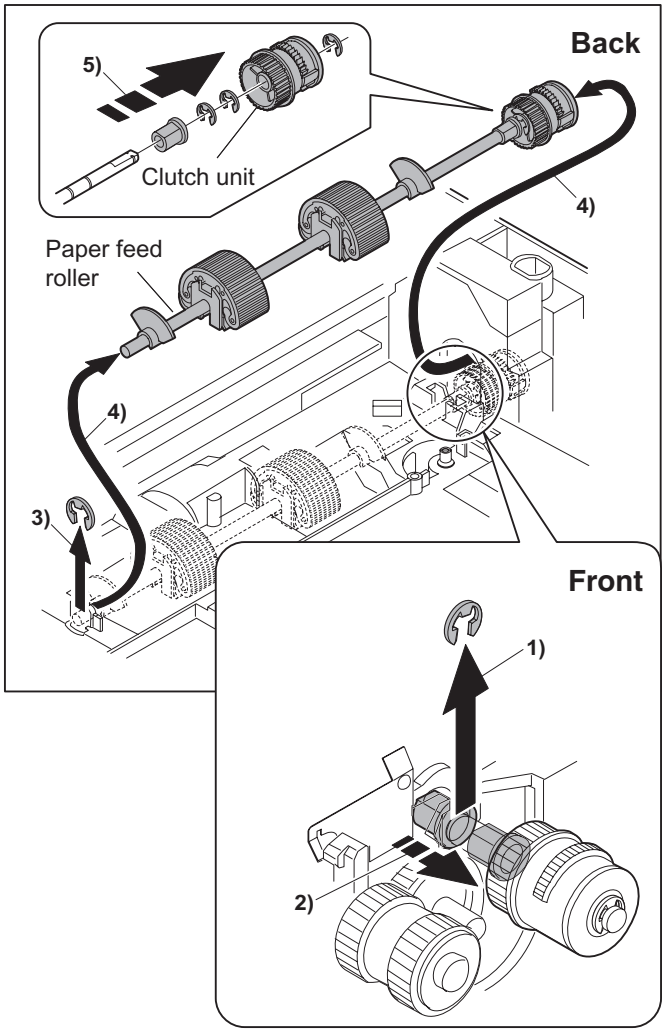


35) Remove the screw and the connector, and remove the PPD1 sensor PWB.



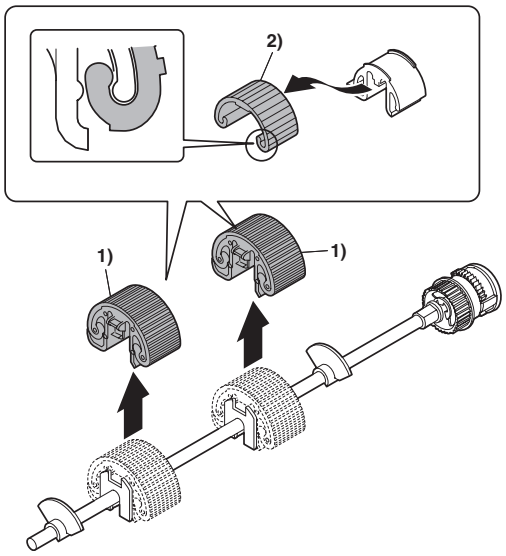
36) Remove two E-rings and remove the paper feed roller.

37) Remove three E-rings and remove the clutch unit.



38) Remove the semi-circular roller unit.

39) Remove the semi-circular rubber.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

6. Manual paper feed section

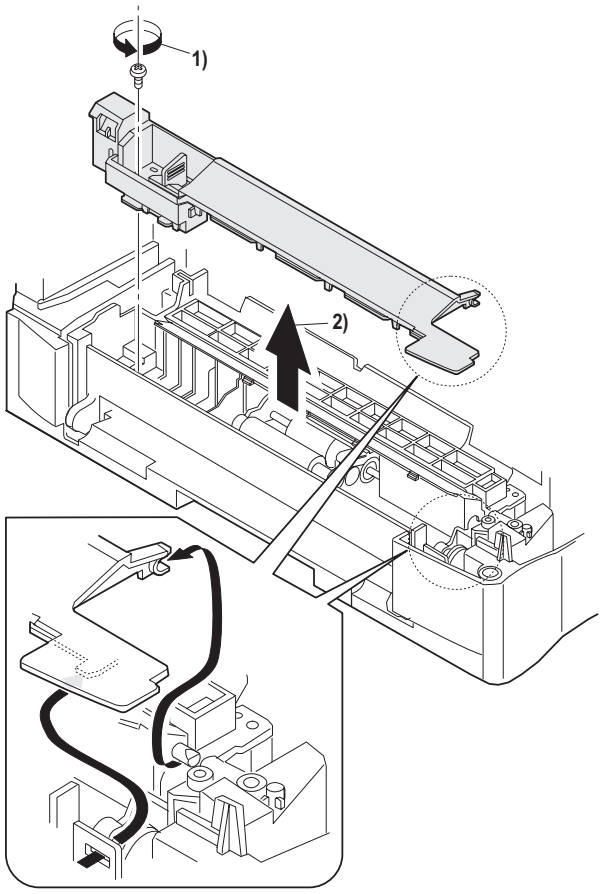
A. List

No.	Part name Ref.
1	Manual transport roller
2	Cassette detection switch
3	PPD1 sensor PWB
4	Side door detection unit

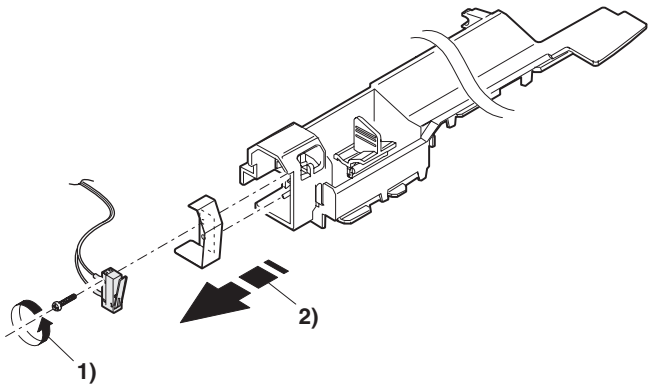
B. Disassembly procedure

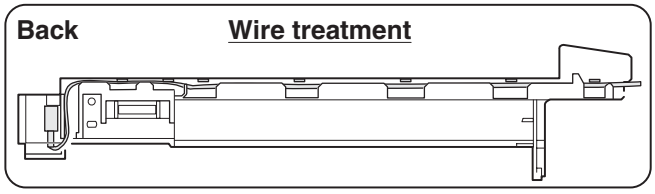
Multi unit

1) Remove the screw and remove the multi upper cover.

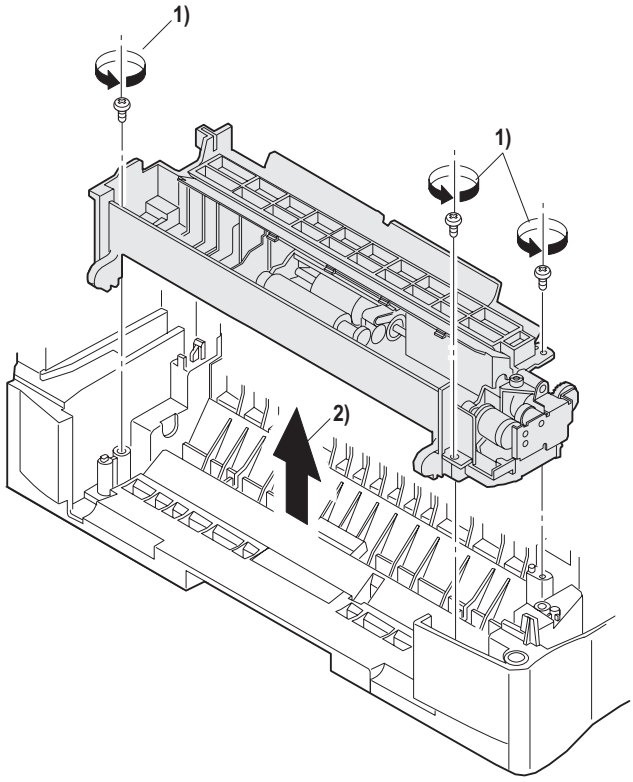


2) Remove the screw and remove the side door detection unit.

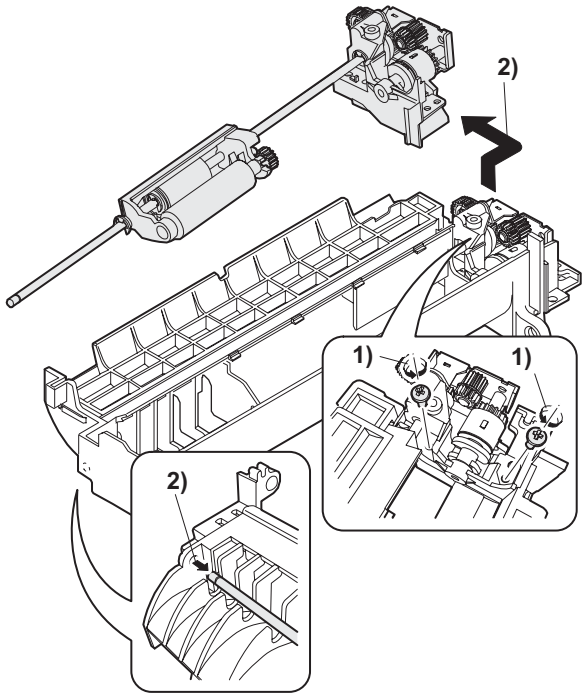




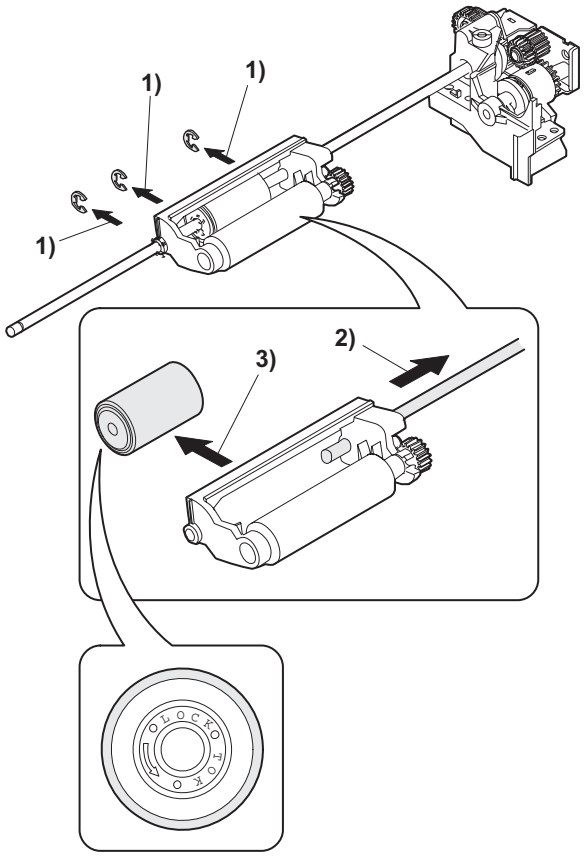
3) Remove three screws and remove the multi paper feed upper frame.



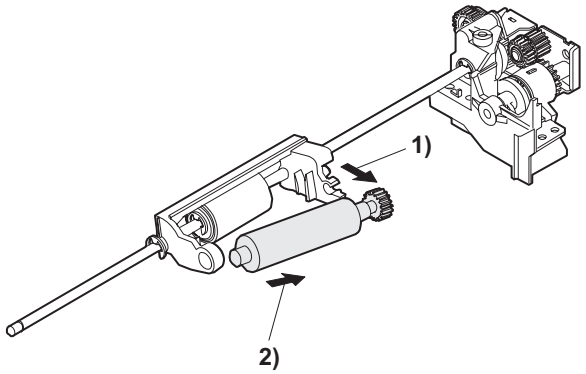
4) Remove two screws and remove the multi feed bracket unit from the multi paper feed upper frame.



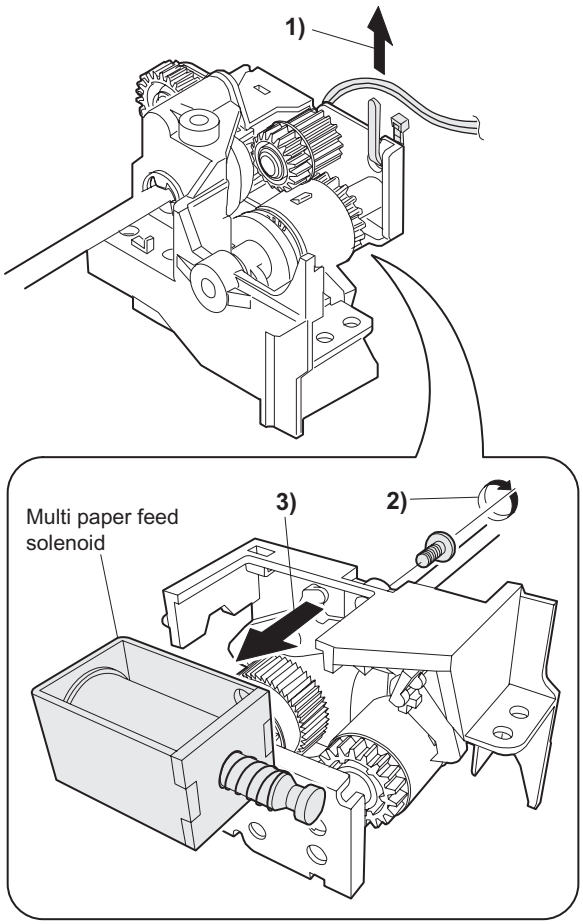
5) Remove three E-rings and remove the manual paper feed roller B9.



6) Remove the pick-up roller.



7) Cut the binding band and remove the multi paper feed solenoid.

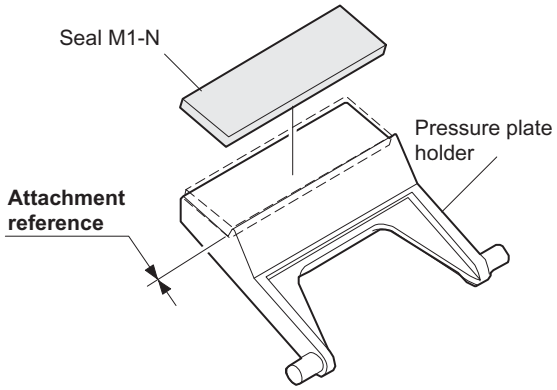


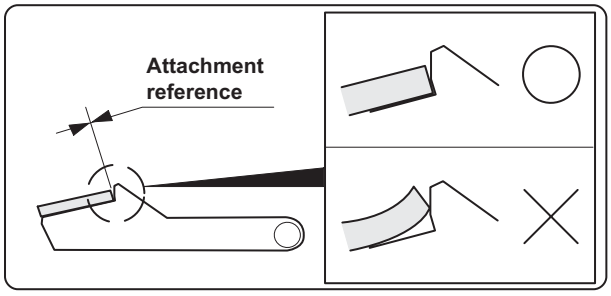
C. Assembly procedure

For assembly, reverse the disassembly procedure.

D. Pressure plate holder attachment

1) Attach the pressure plate holder so that the resin section is not covered with the seal M1-N.





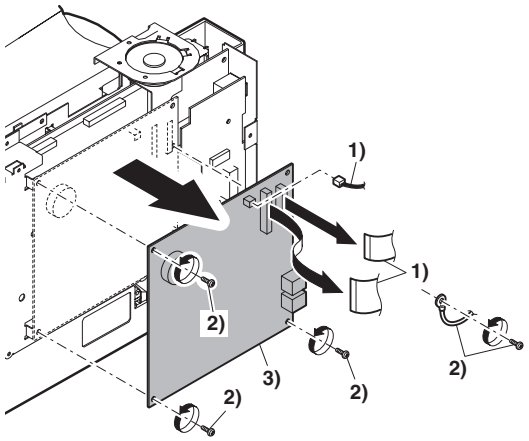
7. Rear frame section

A. List

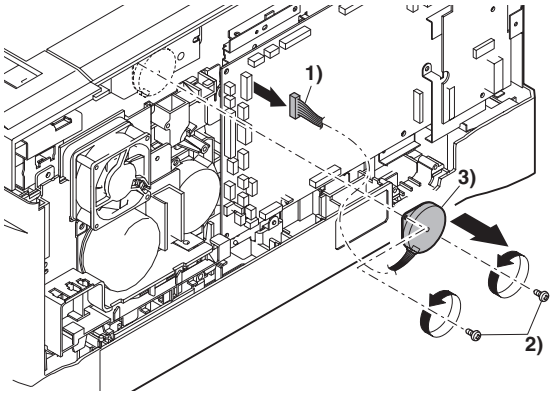
No.	Part name Ref.
1	FAX PWB
2	Mirror motor
3	Main motor
4	Exhaust fan motor
5	NIC PWB
6	Main PWB

B. Disassembly procedure

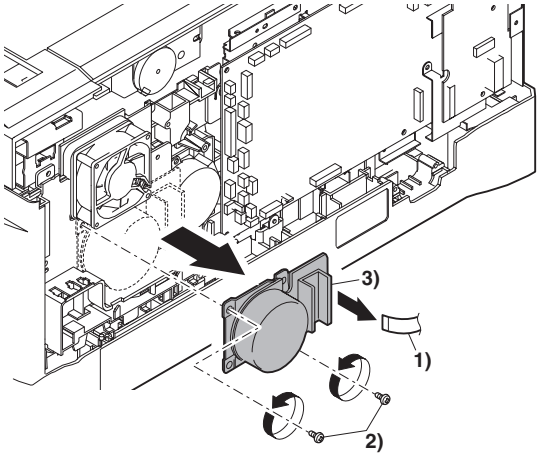
1) Remove the rear cabinet.
2) Remove the connector, the flat cable, and the grounding wire.
3) Remove three screws, and remove the FAX PWB.



4) Disconnect the connector.
5) Remove two screws, and remove the scanner motor.

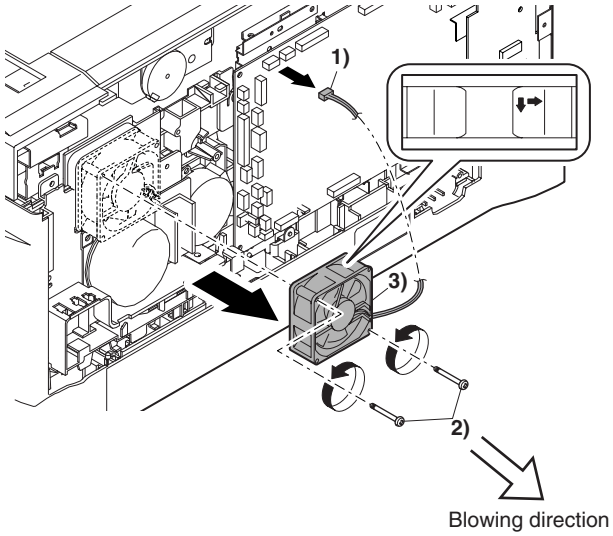


6) Remove two screws and one harness, and remove the main motor.

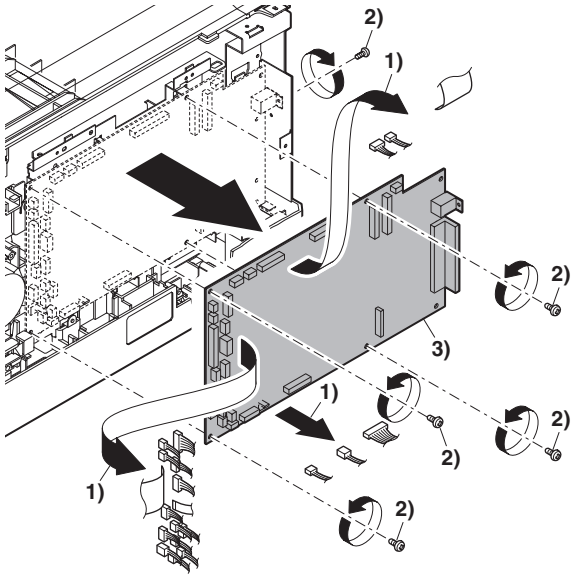


7) Remove two screws and one connector, and remove the exhaust fan motor.

Note: Be careful of the installing directions of the fan.
Attach it so that the blowing direction faces outside.



8) Disconnect the connectors.
9) Remove the five screws, and remove the MCU PWB.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

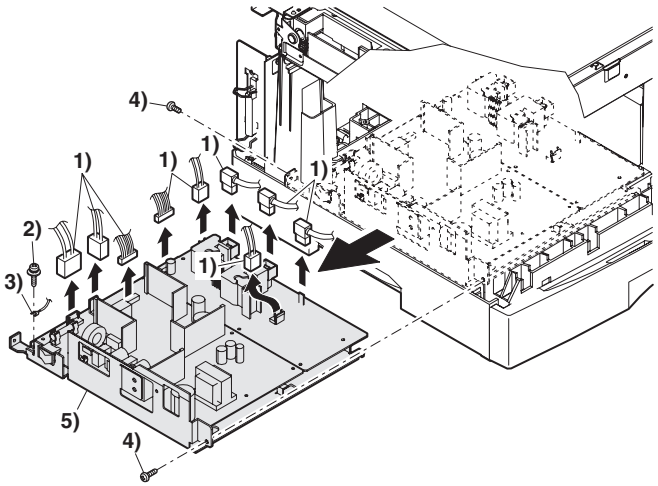
8. Power section

A. List

No.	Part name Ref.
1	Power PWB

B. Disassembly procedure

1) Disconnect each connector.
2) Remove the screw, and remove the earth line.
3) Remove two screws, and remove the power PWB unit.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

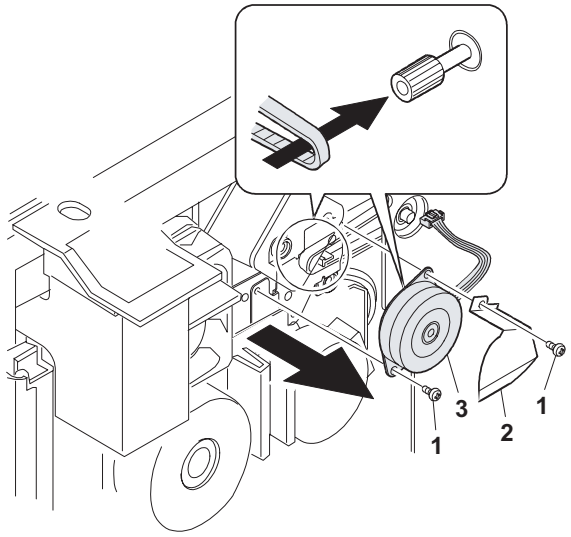
9. Duplex motor section (RSPF model only)

A. List

No.	Part name Ref.
1	Duplex motor

B. Disassembly procedure

1) Remove the rear cabinet.
2) Remove two screws.
3) Remove the Duplex motor cover.
4) Remove the Duplex motor.



Note: When reassembling, be sure to engage the Duplex motor gear with the belt on the main body side.

C. Assembly procedure

For assembly, reverse the disassembly procedure.

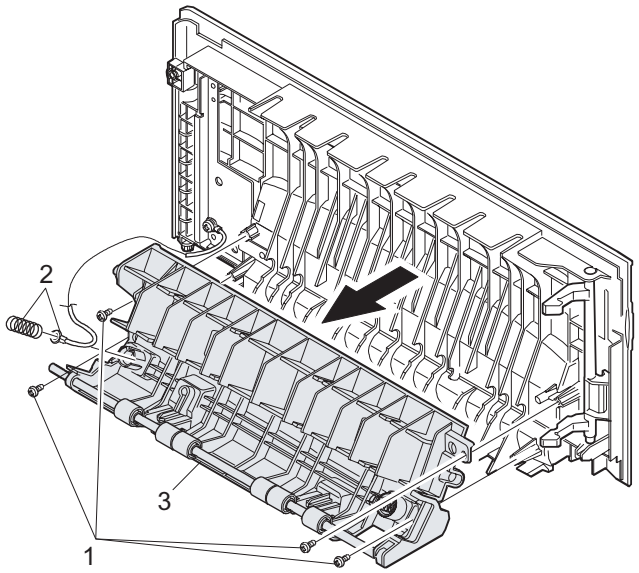
10. Reverse roller section (RSPF model only)

A. List

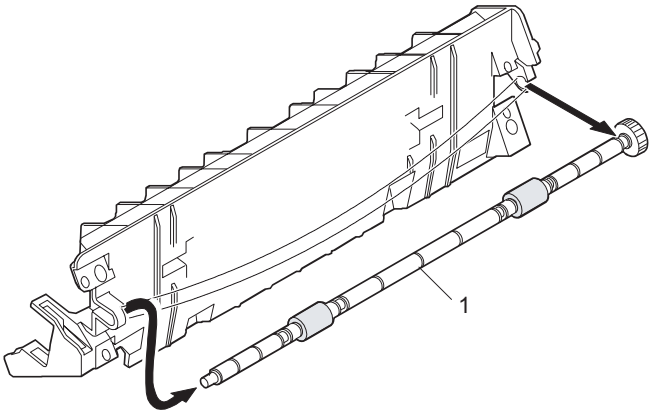
No.	Part name Ref.
1	Reverse roller

B. Disassembly procedure

1) Remove four screws
2) Remove the spring, and the earth wire
3) Remove the reverse unit.



4) Bend the reverse roller and remove it.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

11. RSPF section (RSPF model only)

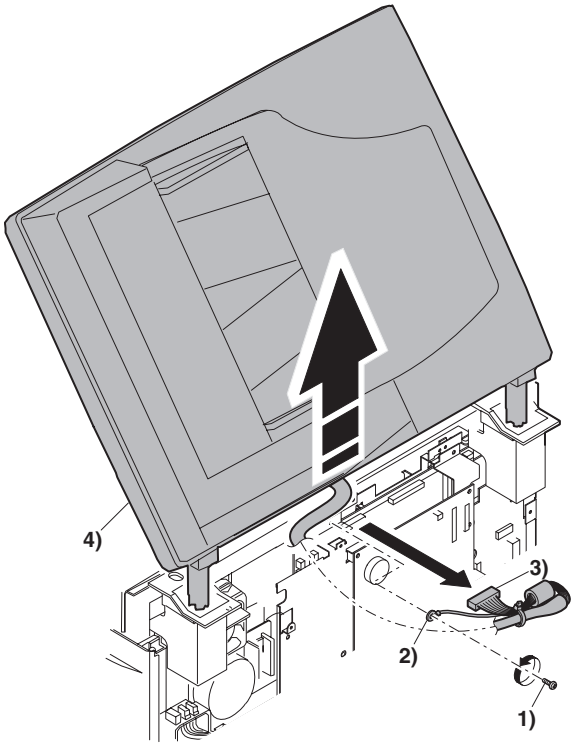
A. RSPF

(1) Remove the rear cabinet.

1) Remove four screws.
2) Remove the rear cabinet.

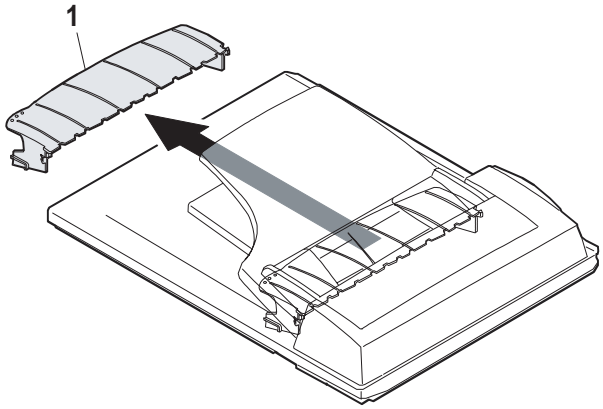
(2) Remove the RSPF.

1) Remove the connector and the cable.
2) Remove the RSPF.



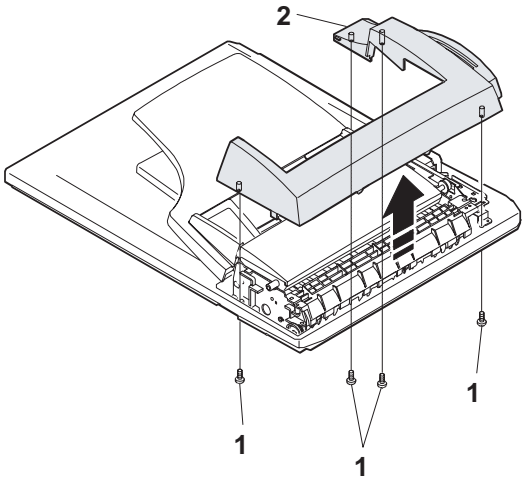
B. Intermediate tray

1) Remove the intermediate tray.



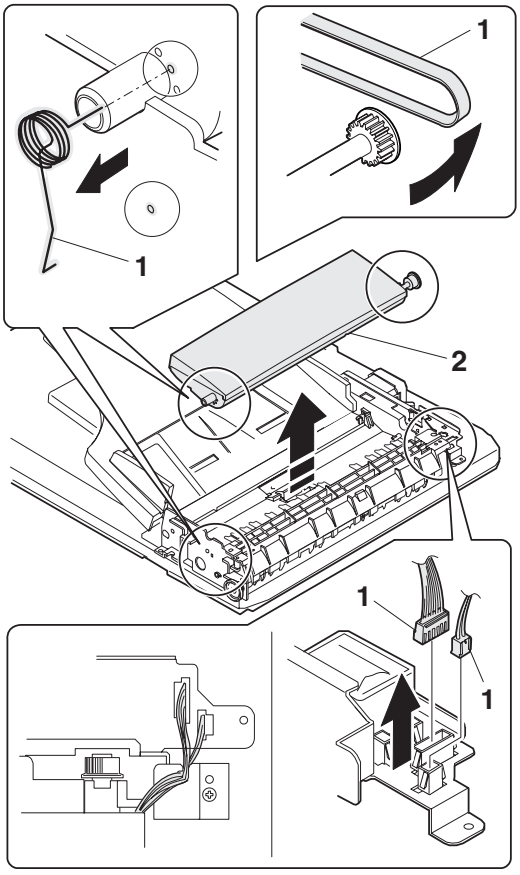
C. Upper cover

1) Remove four screws from the bottom of the main body.
2) Remove the upper cover.



D. Pickup unit

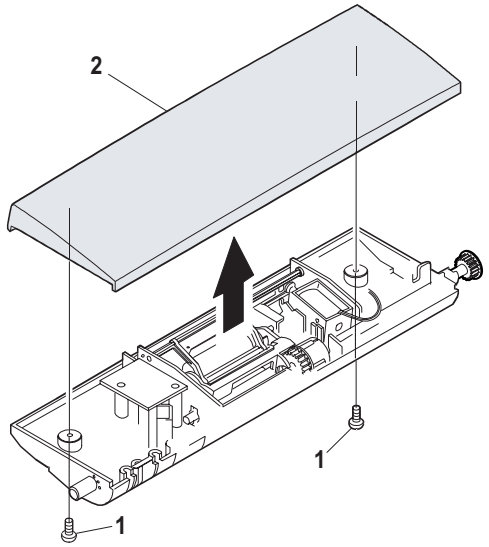
1) Remove the belt, the paper feed frame spring, and two harnesses.
2) Remove the pickup unit.



Note: When reassembling, be careful of the hole position for the paper feed frame spring.

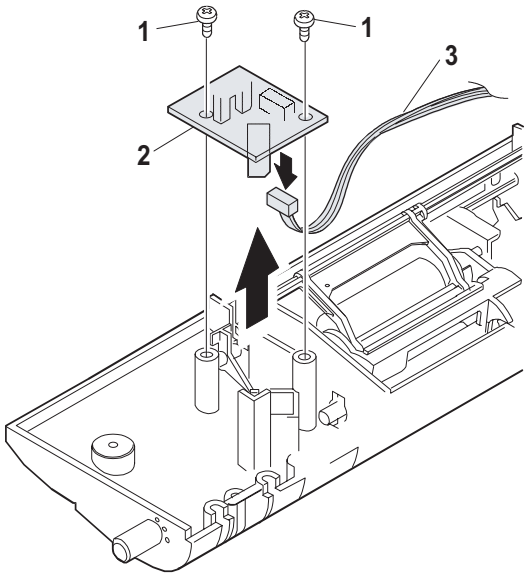
E. Upper cover of the pickup unit.

1) Remove two screws from the bottom of the pickup unit.
2) Remove the upper cover.



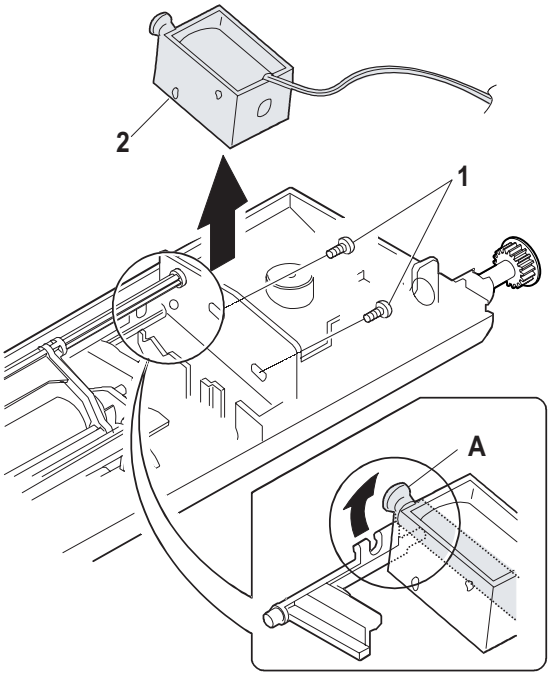
F. Sensor PWB

1) Remove two screws.
2) Remove the sensor PWB.
3) Remove the harness.



G. Pickup solenoid

1) Remove two screws.
2) Remove the pickup solenoid.

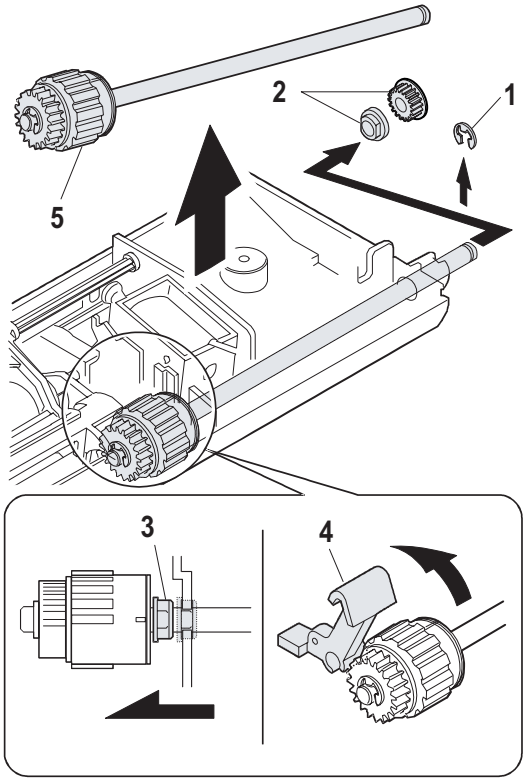


Note: When reassembling, hang the iron core on the solenoid arm.

H. Clutch

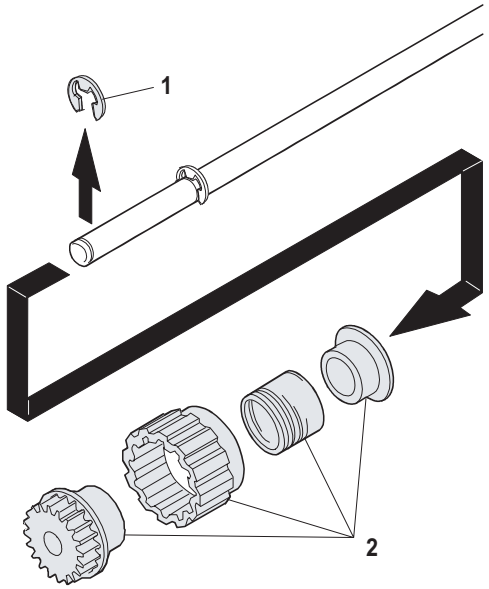
(1) Remove the clutch unit.

1) Remove the E-ring.
2) Remove the pulley and the bush.
3) Slide the bush in the arrow direction.
4) Lift the clutch pawl.
5) Remove the clutch unit.



(2) Remove the clutch

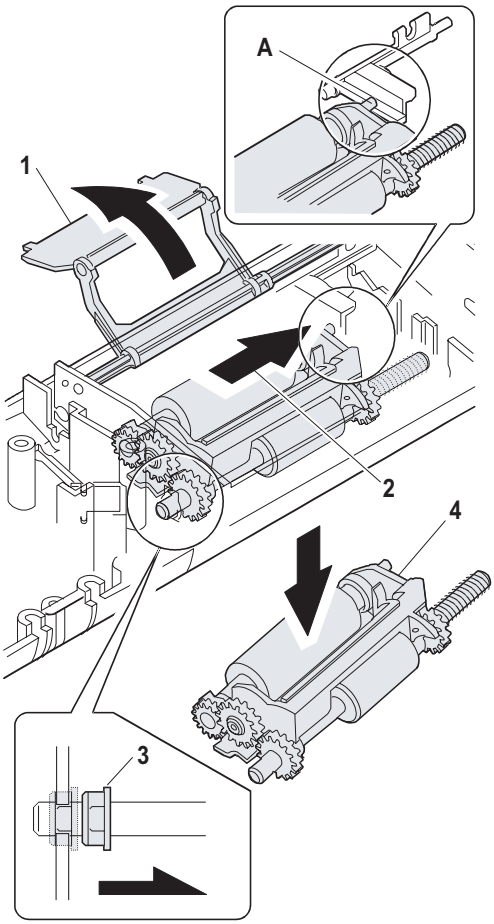
1) Remove the E-ring.
2) Remove the parts.



I. Manual paper feed roller, pickup roller

(1) Remove the pickup unit.

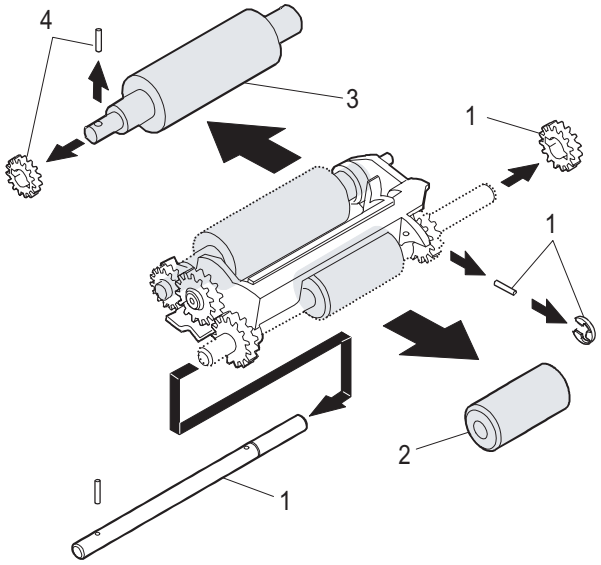
1) Lift the paper stopper.
2) Slide the take-up roller unit.
3) Slide the bushing in the arrow direction.
4) Remove the take-up roller.



Note: When reassembling, hang the convex portion of the roller unit on the solenoid arm.

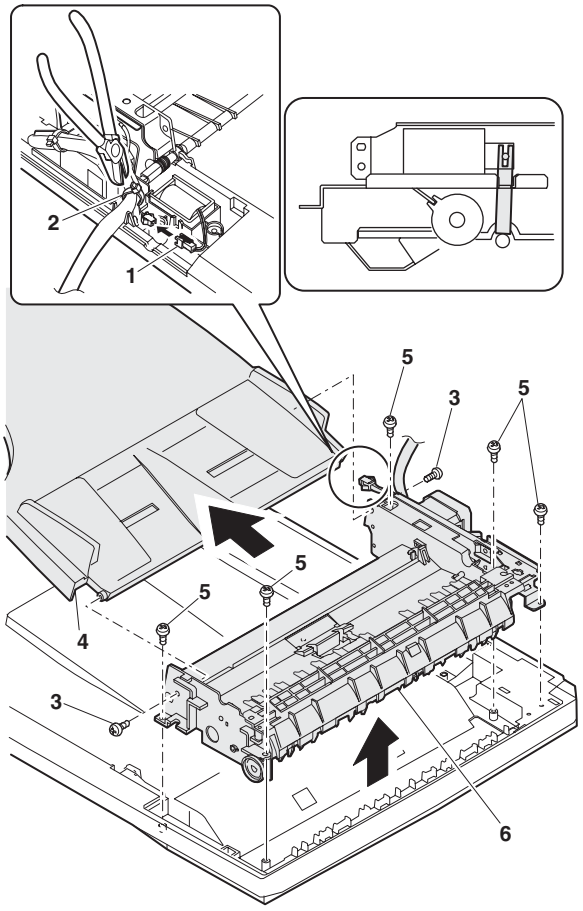
(2) Remove the Manual paper feed roller, pickup roller.

1) Remove the parts.
2) Remove the manual paper feed roller.
3) Remove the pickup roller.
4) Remove the parts.



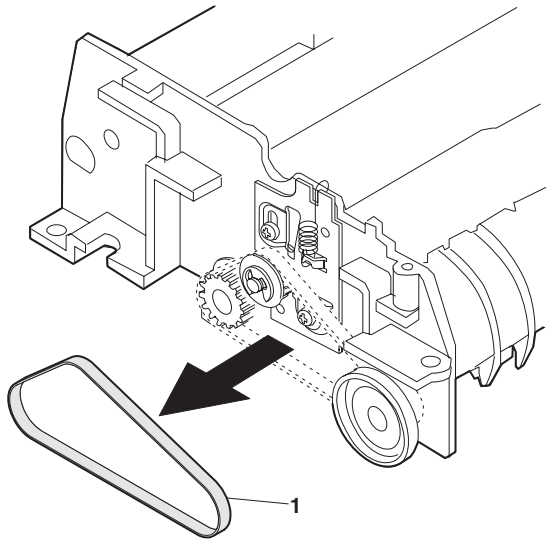
J. Transport unit removal

1) Disconnect the connector, and cut the binding band.
2) Remove two screws, and remove the document tray unit.
3) Remove five screws, and remove the transport unit.



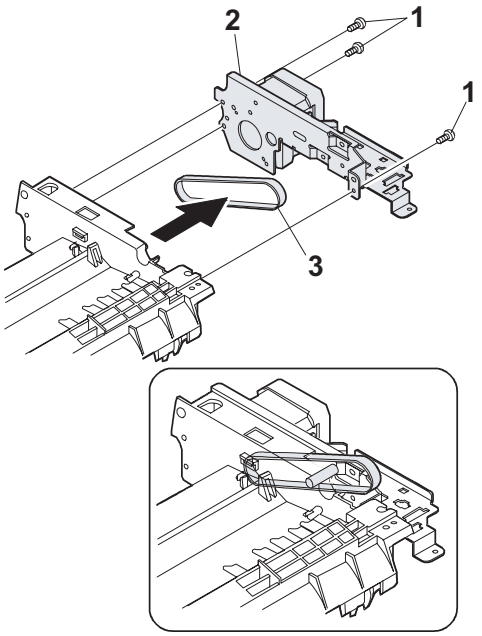
K. Belt 1

1) Remove the belt.



L. Belt 2

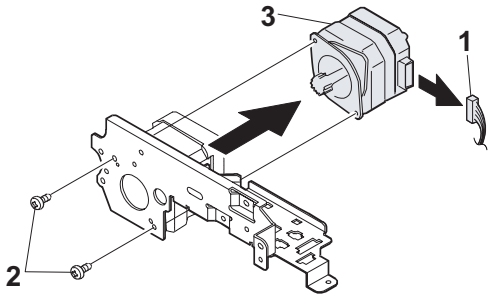
1) Remove three screws.
2) Remove the drive unit.
3) Remove the belt.



Note: When reassembling, hang the belt on the boss.

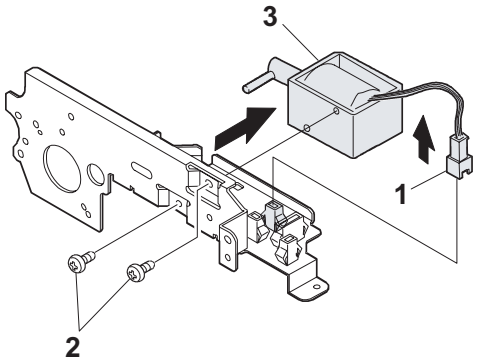
M. SPF motor

1) Remove the harness.
2) Remove two screws.
3) Remove the SPF motor.



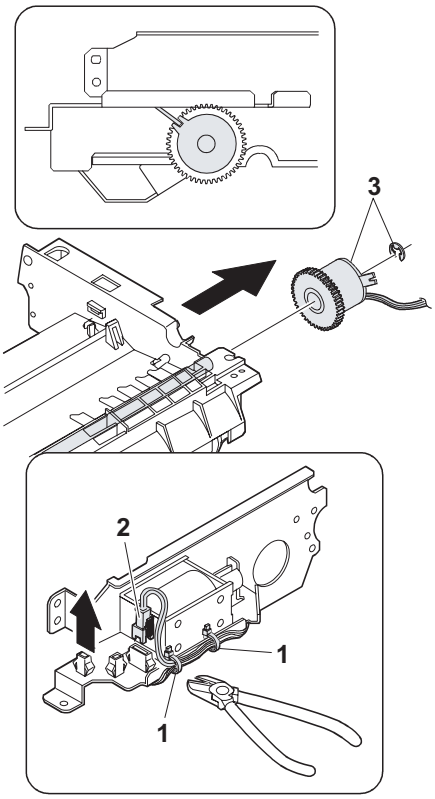
N. Solenoid

1) Remove the harness.
2) Remove two screws.
3) Remove the solenoid.



O. Clutch

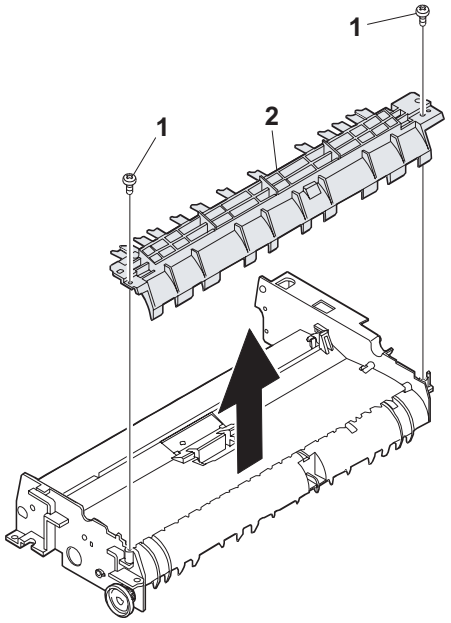
1) Cut the band with nippers.
2) Remove the harness.
3) Remove the clutch.



P. Paper supply roller

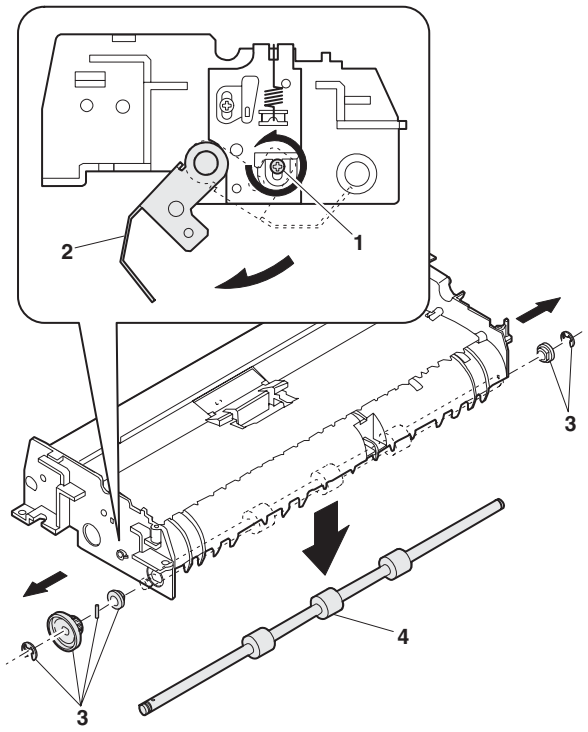
(1) Remove the parts.

1) Remove the two screws.
2) Remove the parts.



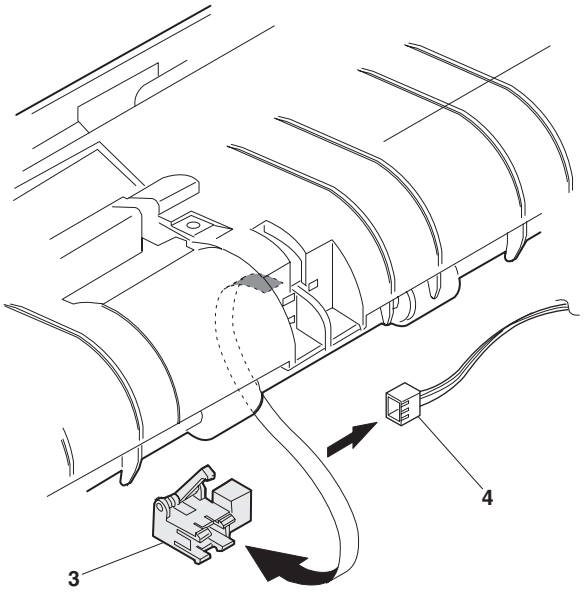
(2) Remove the paper supply roller.

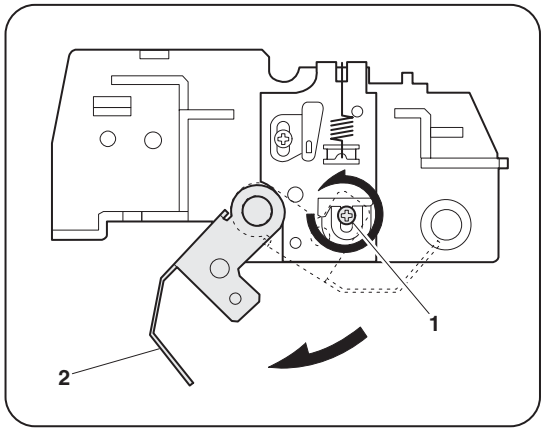
1) Loosen the screw.
2) Open the paper exit paper guide.
3) Remove the parts.
4) Remove the paper supply roller.



Q. Paper entry sensor

1) Loosen the screw.
2) Open the paper exit paper guide.
3) Remove the paper entry sensor.
4) Remove the harness.

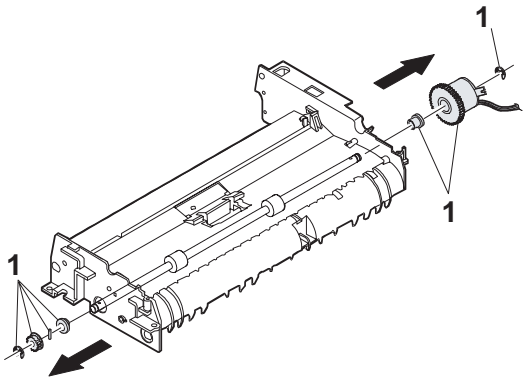




R. Transport roller 1.

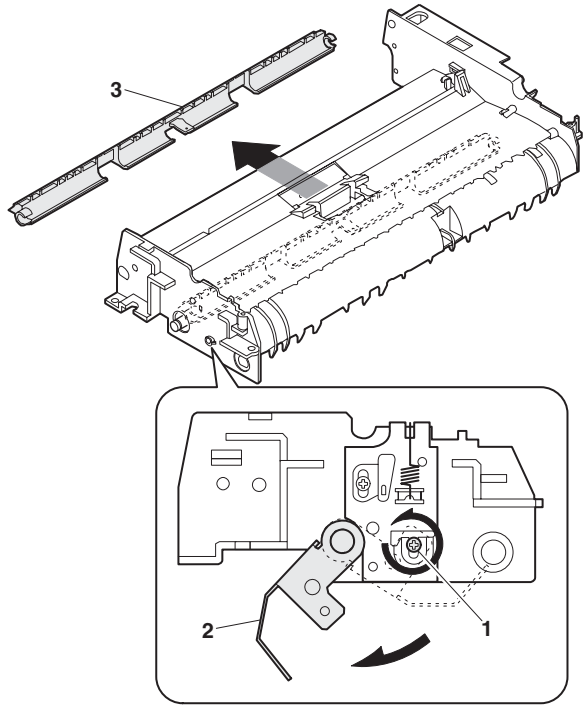
(1) Remove the parts.

1) Remove the parts.



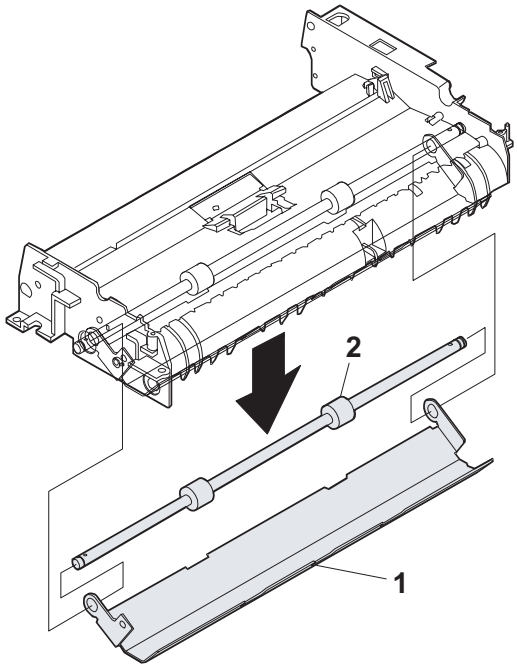
(2) Remove the parts.

1) Loosen the screw.
2) Open the paper exit paper guide.
3) Remove the parts.



(3) Remove the transport roller.

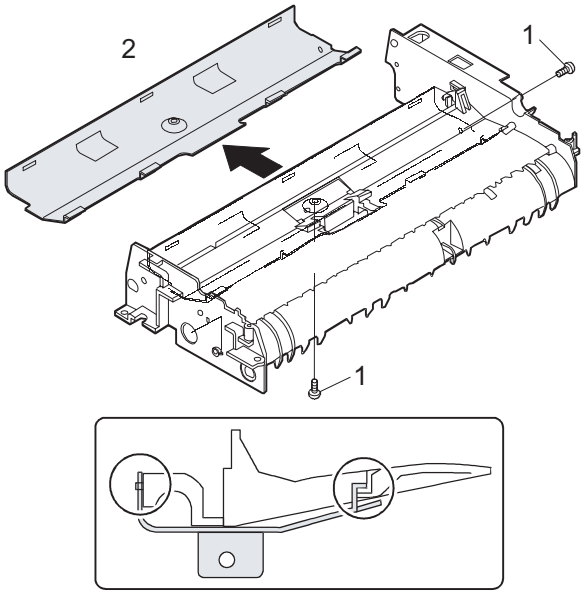
1) Remove the paper exit paper guide.
2) Remove the transport roller.



S. Paper exit roller

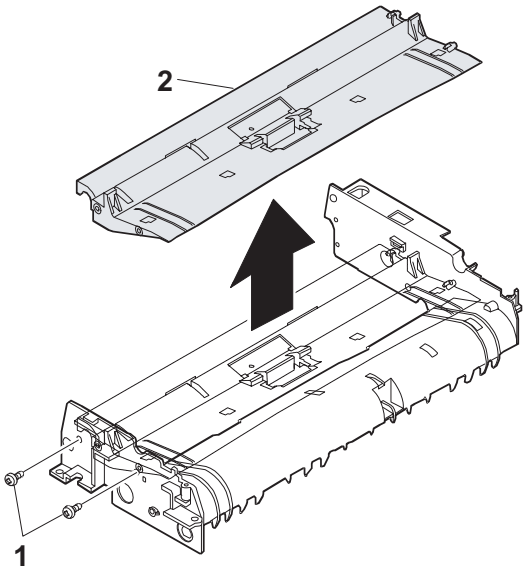
(1) Remove the parts.

1) Remove two screws.
2) Remove the parts.



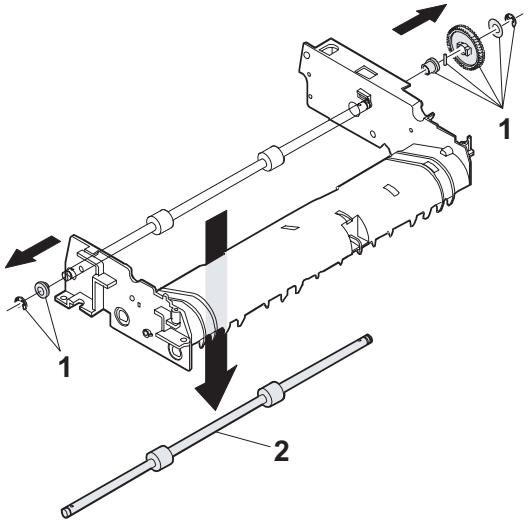
(2) Remove the paper feed paper guide upper.

1) Remove two screws.
2) Remove the paper feed paper guide upper.



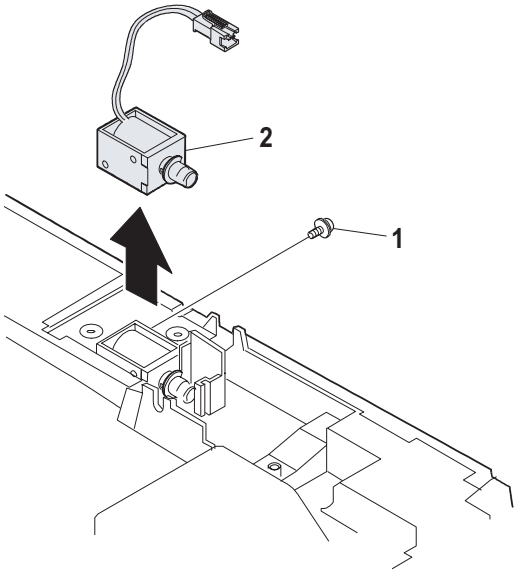
(3) Remove the paper exit roller.

1) Remove the parts.
2) Remove the paper exit roller.



(2) Remove the solenoid.

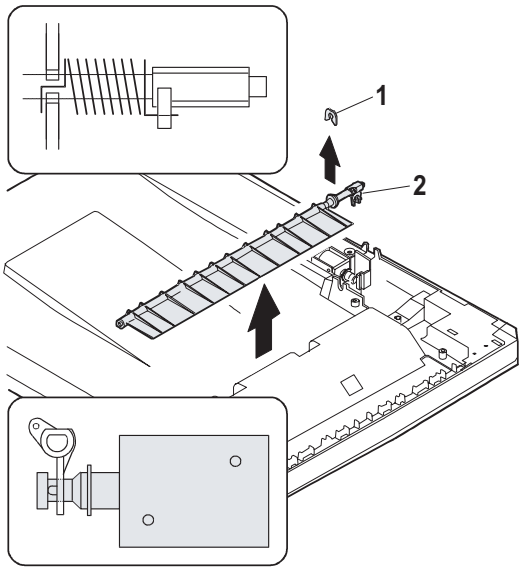
1) Remove the screw.
2) Remove the solenoid.



T. Solenoid

(1) Remove the reverse gate

1) Remove the ring
2) Remove the reverse gate



Note: When reassembling, be careful of the groove and the hole positions of the spring.

Note: When reassembling, hang 2) on the solenoid.

[9] ADJUSTMENTS

1. Optical section

A. Copy magnification ratio adjustment

The copy magnification ratio must be adjusted in the main scanning direction and in the sub scanning direction. To adjust, use TC 48-01.

(1) Outline

The main scanning (front/rear) direction magnification ratio adjustment is made manually.

The adjustment is made by manual key operations. (The zoom data register set value is changed for adjustment.)

The magnification ratio in the sub scanning direction is adjusted by changing the carriage (scanner) scanning speed.

(2) Main scanning/sub scanning direction magnification ratio adjustment

a. Cases when the adjustment is required

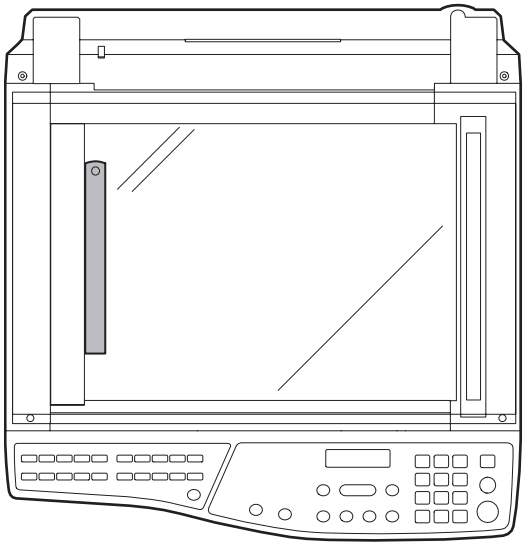
1) When the main PWB is replaced.
2) When the EEPROM in the main PWB is replaced.
3) When "U2" trouble occurs.
4) When repairing or replacing the optical section.

b. Necessary tools

- Scale

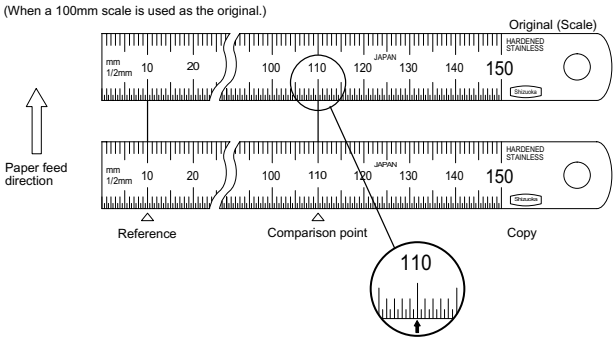
c. Main scanning direction adjustment procedure

1) Set the scale vertically on the document table. (Use a long scale for precise adjustment.)



2) Set the copy magnification ratio to 100%.
3) Make a copy on A4 or 81/2" x 11" paper.
4) Measure the length of the copied scale image.
5) Calculate the main scanning direction magnification ratio.
   Main scanning direction magnification ratio

$$= \frac{\text{Copy image dimensions}}{\text{Original dimension}} \text{ X } 100\ (\%)$$



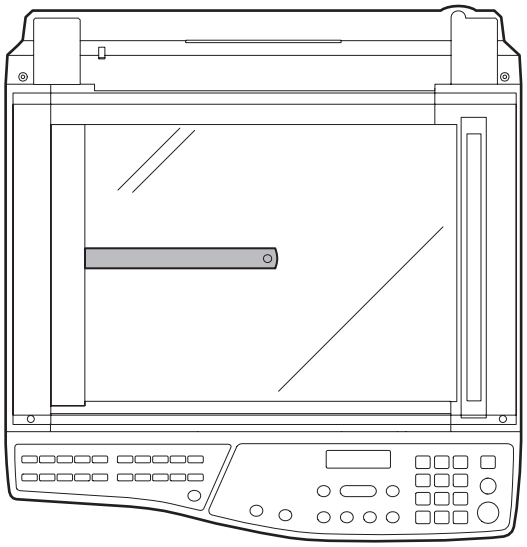
6) Check that the copy magnification ratio is within the specified range. If it is not within the specified range, perform the following procedures.
7) Execute TC 48-01 to select the main scanning direction copy magnification ratio adjustment mode.
   To select the adjustment mode, use the [←/→] key.

Mode	Display item	Default value	LED
Main scan direction magnification ratio	F-R	50	PRINT mode lamp
OC mode sub scan direction magnification ratio	SCAN	50	SCAN mode lamp

8) Enter the new set value of main scanning direction copy magnification ratio with the copy quantity set key, and press the [START] key.
9) Change the set value and repeat the adjustment until the ratio is within the specified range.
   When the set value is changed by 1, the magnification ratio is changed by 0.1%.

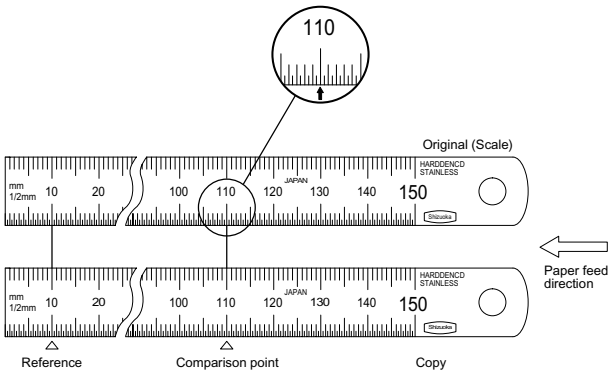
d. Sub scanning direction adjustment procedure

1) Set the scale on the document table as shown below. (Use a long scale for precise adjustment.)



2) Set the copy magnification ratio to 100%.
3) Make a copy on A4 or 81/2" x 11" paper.
4) Measure the length of the copied scale image.
5) Calculate the sub scanning direction copy magnification ratio using the formula below.

$$= \frac{\text{Copy image dimensions}}{\text{Original dimension}} \text{ X } 100\ (\%)$$



6) Check that the actual copy magnification ratio is within the specified range. (100 ± 1.0%).
If it is not within the specified range, perform the following procedures.
7) Execute TC 48-01 to select the sub scanning direction copy magnification ratio adjustment mode.
To select the adjustment mode, use the [←/→] key. (SCAN mode lamp ON)
8) Enter the new set value of sub scanning direction copy magnification ratio with the copy quantity set key, and press the [START] key.

Repeat procedures 1) - 8) until the sub scanning direction actual copy magnification ratio in 100% copying is within the specified range.

When the set value is changed by 1, the magnification ration is changed by 0.1%.

B. Image position adjustment

The employed test commands and the contents are as follows:

Mode	Display item	Default	LED	TC
Print start position (Main cassette paper feed)	TRAY1	50	COPY mode lamp Main cassette lamp	50-01
(*) Print start position (2nd cassette paper feed)	TRAY2	50	COPY mode lamp 2nd cassette lamp	
Print start position (Manual paper feed)	MFT	50	COPY mode lamp Manual feed lamp	
Image lead edge void amount	DEN-A	50	PRINT mode lamp	
Image scan start position	RRC-A	50	SCAN mode lamp	
Image rear edge void amount	DEN-B	50	COPY mode lamp PRINT mode lamp SCAN mode lamp	
Print center offset (Main cassette paper feed)	TRAY1	50	COPY mode lamp Main cassette lamp	50-10
(*) Print center offset (2nd cassette paper feed)	TRAY2	50	COPY mode lamp 2nd cassette lamp	
Print center offset (Manual paper feed)	MFT	50	COPY mode lamp Manual feed lamp	
2nd print center offset (Main cassette paper feed)	SIDE2	50	PRINT mode lamp Main cassette lamp	

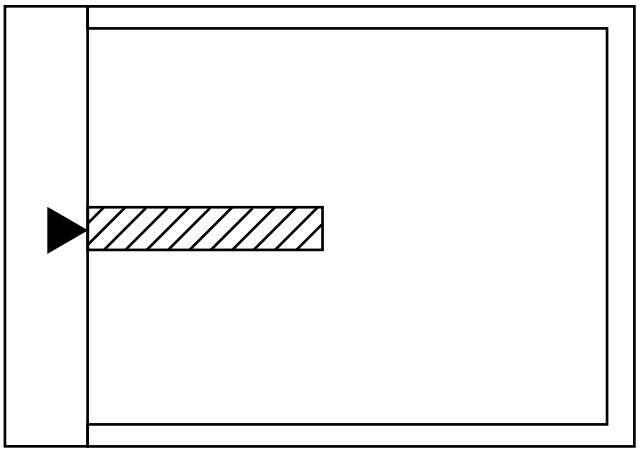
The modes can be selected by pressing [←/→] key.

(*): Support for the installation models. For non-installation models, skip.

* In the 2nd print center offset adjustment, print is made forcibly as 1to2/Long Edge from OC regardless of duplex setting.

(1) Lead edge adjustment

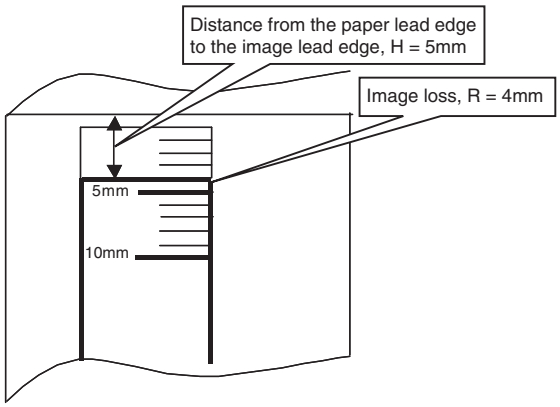
1) Set a scale to the center of the paper lead edge guide as shown below, and cover it with B4 or 8 1/2" x 14" paper.



2) Execute TC 50 - 01
3) Set the print start position (A: COPY mode lamp ON), the lead edge void amount (B: PRINT mode lamp ON), the scan start position (C: SCAN mode lamp) to 1, and make a copy of the scale at 100%.
4) Measure the image loss (Rmm) of the scale.
Set C = 10 x R (mm). (Example: Set to 40.)
When the value of C is increased by 10, the image loss is decreased by 1mm. (Default: 50)
5) Measure the distance (Hmm) from the paper lead edge to the image print start position.
Set A = 10 x H (mm). (Example: Set to 50.)
When the value of A is increased by 10, the image lead edge is moved to the paper lead edge by 1mm. (Default: 50).
6) Set the lead edge void amount to B = 50 (2.5mm). (Default: 50)
When the value of B is increased by 10, the void is extended by about 0.1mm. (For 25 or less, however, the void amount is regarded as 0.)

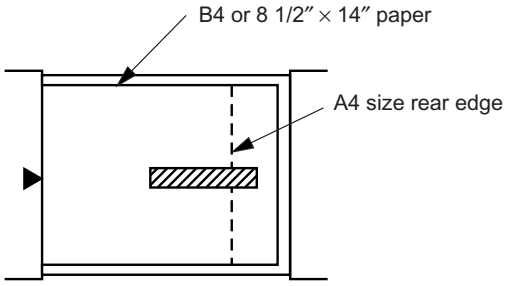
* The SFP adjustment is made by adjusting the SPF image scan start position after OC adjustment.

(Example)

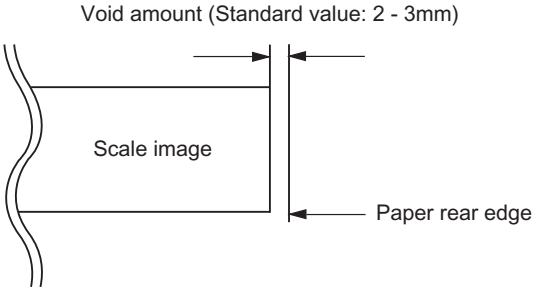


(2) Image rear edge void amount adjustment

1) Set a scale to the rear edge section of A4 or 11" x 8 1/2" paper size as shown in the figure below, and cover it with B4 or 8 1/2" x 14" paper.



2) Execute TC 50 - 01 to select the image rear edge void amount adjustment mode.
   The set adjustment value is displayed on the copy quantity display.
3) Make a copy and measure the void amount of image rear edge.

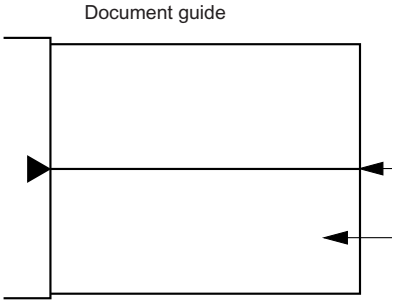


4) If the measurement value is out of the specified range, change the set value and repeat the adjustment procedure.
   The default value is 50.

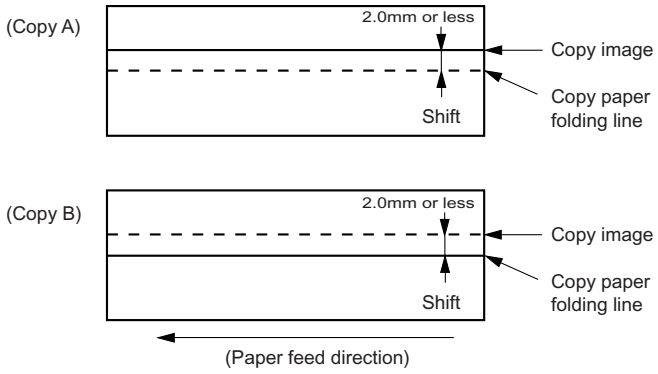
(3) Center offset adjustment

1) Set the self-made test chart for the center position adjustment so that its center line is aligned with the center mark of the document guide.

- Test chart for the center position adjustment.
  Draw a line at the center of A4 or 8 1/2" x 11" paper in the paper transport direction.



2) Execute TC 50-10 to select the print center offset (cassette paper feed) adjustment mode.
   The set adjustment value is displayed on the copy quantity display.
3) Make a copy and check that the copied center line is properly positioned.
   The standard value is 0 ±2mm from the paper center.



4) If the measured value is out of the specified range, change the set value and repeat the adjustment procedure.
   When the set value is increased by 1, the copy image is shifted by 0.1mm toward the rear frame.

- For the manual paper feed, change the manual paper feed adjustment mode and perform the similar procedures.
- Since the document center offset is automatically adjusted by the CCD which scan the reference lines (F/R) on the back of document guide, there is no need to adjust manually.

2. Copy density adjustment

A. Copy density adjustment timing

The copy density adjustment must be performed in the following cases:

- When maintenance is performed.
- When the developing bias/grid bias voltage is adjusted.
- When the optical section is cleaned.
- When a part in the optical section is replaced.
- When the optical section is disassembled.
- When the OPC drum is replaced.
- When the main control PWB is replaced.
- When the EEPROM on the main control PWB is replaced.
- When the memory trouble (U2) occurs.

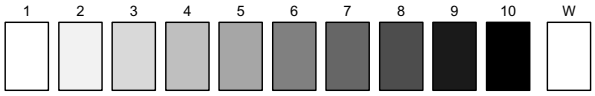
B. Note for copy density adjustment

1) Arrangement before execution of the copy density adjustment

- Clean the optical section.
- Clean or replace the charger wire.
- Check that the voltage at the high voltage section and the developing bias voltage are in the specified range.

C. Necessary tool for copy density adjustment

- One of the following test charts:
  UKOG-0162FCZZ, UKOG-0089CSZZ, KODAK GRAY SCALE
- B4 (14" x 8 1/2") white paper
- The user program AE setting should be "3."



Test chart comparison table

UKOG-0162FCZZ DENSITY No.	1	2	3	4	5	6	7	8	9	10	W
UKOG-0089CSZZ DENSITY No.	0.1		0.2		0.3				0.5	1.9	0
KODAK GRAY SCALE		1		2		3		4		19	A

D. Features of copy density adjustment

For the copy density adjustment, the image data shift function provided in the image process LSI is used.

List of the adjustment modes

Auto Mode	Brightness 1 step only
Manual Mode	Brightness 5 steps. Adjustment of only the center brightness is made.
Photo Mode	Brightness 5 steps. Adjustment of only the center brightness is made.
Manual T/S mode	Brightness 5 steps. Adjustment of only the center brightness is made.
T/S Auto mode	Brightness 1 step only

E. Copy density adjustment procedure

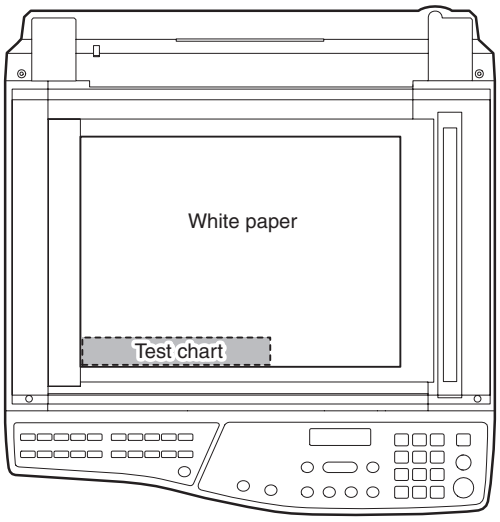
The copy density can be adjusted in 300dpi or in 600dpi.

Main code	Sub code	Resolution for copy density adjustment
46	01	300dpi
	02	600dpi

For selection of modes, use the copy mode select key.

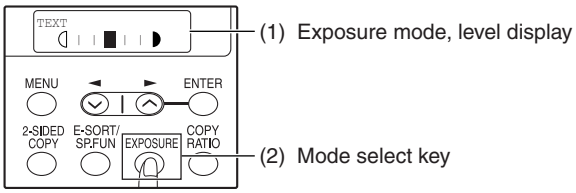
(1) Test chart (UKOG-0162FCZZ) setting

1) Place the test chart so that its edge is aligned with the A4 (Letter) reference line on the document table. Then place a A4 (14" x 8 1/2") white paper on the test chart and close the document cover.



(2) Perform the adjustment in each mode.

1) Execute TC 46-01 (300dpi). To adjust in 600dpi, execute TC 46-02.
2) Select the mode to be adjusted with the exposure mode select key. Set the exposure level to 3 (center) for all adjustment. (Except for the auto mode.)



Adjustment mode	Display item	LED	Sharp gray chart adjustment level
Auto mode	AE	COPY mode lamp	"3" is slightly copied.
Text mode	TEXT	PRINT mode lamp	"3" is slightly copied.
Photo mode	PHOTO	SCAN mode lamp	"3" is slightly copied.
Text T/S mode	TSTXT	PRINT mode lamp SCAN mode lamp	"3" is slightly copied.
Auto T/S mode	TSAE	COPY mode lamp SCAN mode lamp	"3" is slightly copied.

3) Make a copy.
   Check the adjustment level (shown in the above table) of the exposure test chart (Sharp Gray Scale).

	Sharp Gray Scale adjustment level
Non toner save mode	
Toner save mode	

(When too bright): Decrease the value displayed on the copy quantity display.

(When too dark): Increase the value displayed on the copy quantity display.

* The value can be set in the range of 1 - 99.

3. High voltage adjustment

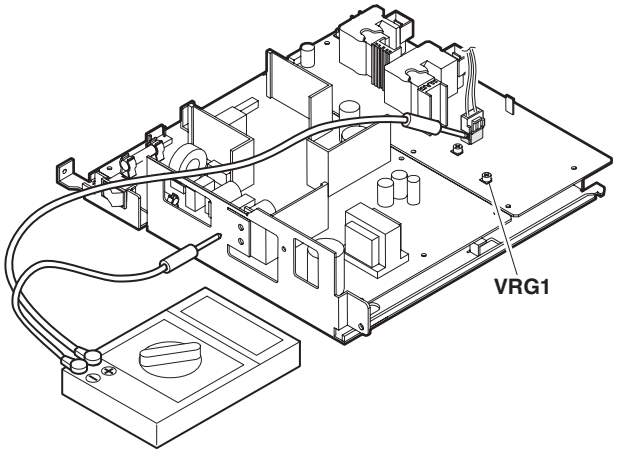
A. Main charger (Grid bias)

Note:

- Use a digital multi meter with internal resistance of 10MΩ or more measurement.
- After adjusting the grid LOW output, adjust the HIGH output. Do not reverse the sequence.

Procedures

1) Set the digital multi meter range to DC700V.
2) Set the positive side of the test rod to the connector CN11-3 (GRID) of high voltage section of the power PWB and set the negative side to the frame ground (power frame).
3) Execute TC 8-02. (The main charger output is supplied for 30 sec in the grid voltage HIGH output mode.)
4) Adjust the control volume (VRG1) so that the output voltage is 580 ±12V.

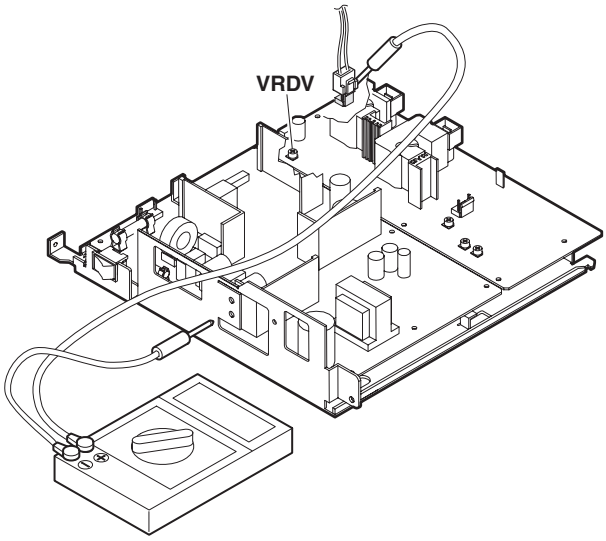


B. DV bias check

Note: • A digital multi meter with internal resistance of 1GΩ must be use for correct check.
• The adjustment volume is locked, and no adjustment can be made.

Procedures

1) Set the digital multi meter range to DC500V.
2) Set the positive side of the test rod to the connector CN-10-1 (DV BIAS) and set the negative side to the frame ground (power frame).
3) Execute TC 25-01 to output the developing bias for 30sec, and check that the output is –400±8V.



4. Duplex adjustment

A. Adjusting the paper reverse position in memory for duplex copying

This step adjusts the front surface printing (odd-number pages of a document set) in the S-D mode copying and the leading edge position of an image on even-number pages in the D-S mode.

That is, it covers the adjustment of the second surface printing mode (image loss at the front edge of an image) in which image data is once stored in memory.

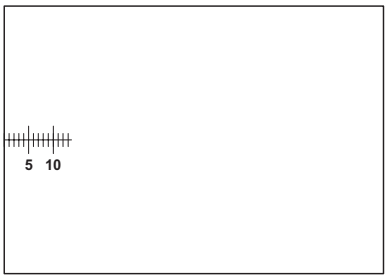
The image data is read, starting from its front end in the document delivery direction (Reference direction of document setting in the OC mode)and stored in memory.

This stored image data is printed starting at the printing start position, in the order of last-stored data to the first-stored data.

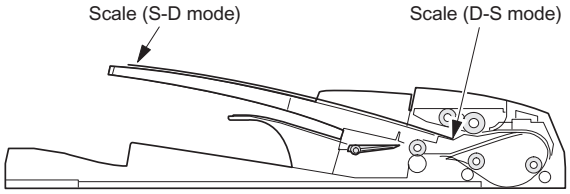
In other words, the front edge image loss of the image can be adjusted by changing the document read end position.

(Adjustment procedure)

1) Preparing test chart (Draw a scale at the rear end of one side of a sheet of A4 white paper or letter paper)



2) Set the test chart so that the scale is positioned as shown below, in the S-D mode and the D-S mode.



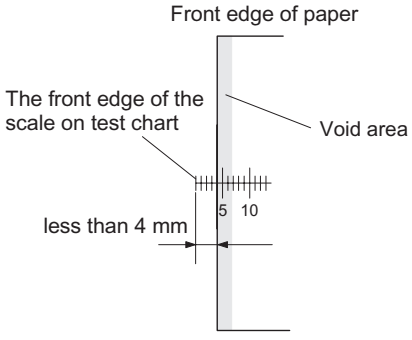
3) Execute test command 50-18.

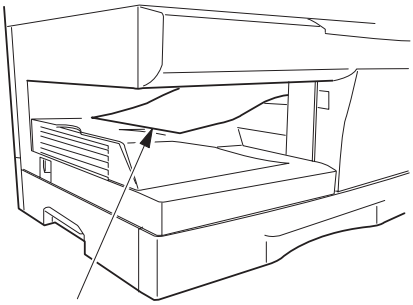
Mode	Display item	Default	LED
OC memory reverse output position	OC	50	COPY mode lamp
SPF memory reverse output position	SPF	50	PRINT mode lamp

Select the SPF memory reverse output position, and press [START] key to make a copy.

Adjust the setting so that the front edge image loss is less than 4.0 mm in the R-SPF mode.

An increase of 1 in setting represents an increase of 0.1 mm in image loss.





2nd printing surface where scale is printed (lower side)

B. Adjusting trailing edge void in duplex copy mode

This is the adjustment of the first surface printing mode (rear end void) in duplex copying.

In a duplex copying operation, the paper is delivered starting from the rear end of the first printing surface. It is therefore necessary to make a void area at the rear end on the first printing surface to prevent paper jam at the fusing part.

There are two adjustment modes:

1) Image cut rear end void quantity (R-SPF) 50-19 (SCAN mode lamp)
   The size (length) of a document read from the R-SPF is detected, the image at the trailing edge of the first printing surface is cut to make a void area. (The adjustment of void quantity at the time when the cassette paper size is not recognized.)
2) Paper trailing edge void quantity 50-19 (PRINT mode lamp)
   This adjustment is made when the cassette paper size is recognized. The trailing edge void quantity can be adjusted by changing the trailing edge image laser OFF timing.

The paper void quantity should be first adjusted before the image cut trailing edge void quantity (R-SPF) is adjusted.

The adjustment modes can be selected by pressing [←/→] key. (Adjustment range; 1 – 99)

Enter the adjustment value and press [START] key to save the set value and make a copy. (The paper information is cleared for every copy.)

When the set value is increased by 1, the void amount is increased by about 0.1mm.

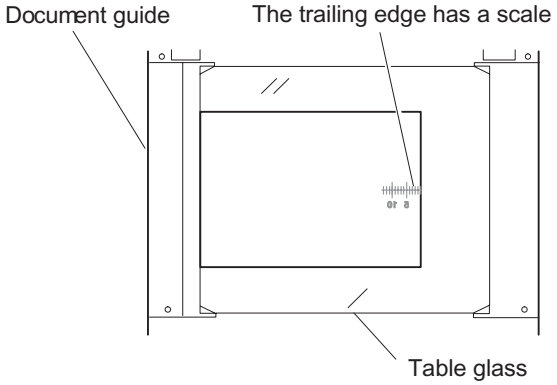
Mode	Display item	Default	LED
Paper rear edge void amount	DEN-B	50	PRINT mode lamp
Print start position (Duplex back surface)	RRC-D	50	SCAN mode lamp

* The initial value of duplex setting is 2to2.

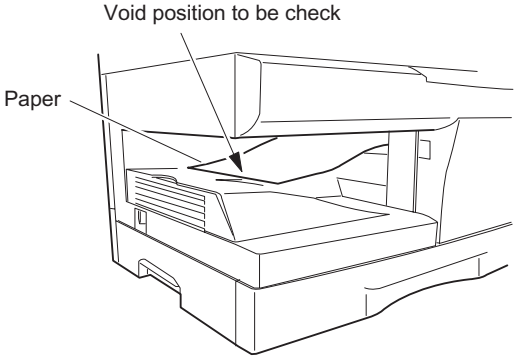
(Adjustment procedure)

(1) Paper trailing edge void quantity

1) Preparing test chart (Draw a scale at the rear end of one side of a sheet of A/4 white paper or letter paper)
2) Set the test chart on the document glass as shown below.



3) Execute test command 50-19 to turn on the PRINT mode lamp and make the printing mode in OC-D mode.
   Make a copy of the test chart to check the void area of the scale on the image.

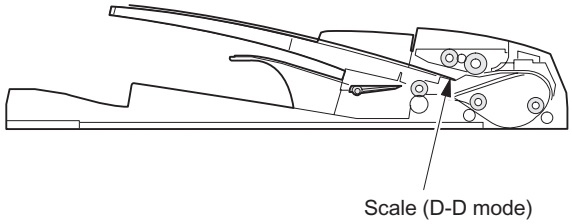


The trailing edge void on the first printing surface is shown above.

Adjust the setting so that the void area is 4 - 5 mm. An increase in 1 of setting represents 0.1 mm in void area.

(2) Image cut trailing edge void quantity (R-SPF)

1) Set the test chart so that the scale is positioned as shown below.



2) Execute test command 50-19 to turn on the SCAN mode lamp(on the operation panel) and make the printing mode in the D-D mode.
3) Remove and reinsert the cassette.

Note: Make sure to carry out this step before making a copy during this adjustment.

4) Make a copy and check the void area of the scale on the image.
   Adjust the setting so that the void area is 2 - 4 mm. An increase of 1 in setting represents an increase of 0.1 mm in void area.
   l Void position to be checked

5. SPF (RSPF) scan position automatic adjustment

Place a black chart so that it covers the SPF scan glass and the OC glass together, and close the OC cover.

When test command 53-08 is executed, the current adjustment value is displayed as the initial display.

* Default is 1. Adjustment range is 1 – 99. Adjustment unit 1 = about 0.127mm
* If the values are kept as the default values, SPF scan is not performed properly. The front area of the proper scan position may be scanned.

In case of AUTO, press [START] key, and the mirror unit scans from the home position to the SPF scan position with the adjustment value displayed. The SPF glass cover edge position is calculated from the difference between the SPFG glass cover edge and the OC side document glass CCD output level. If the adjustment is normal, the adjusted value is displayed. If abnormal, the error LED lights up with the current set value displayed.

During the error LED is lighted, when [START] key is pressed again, execution is performed again.

Mode	Display item	Default	LED
SPF scan position auto adjustment	AUTO	1	COPY mode lamp
SPF scan position manual adjustment	MANU	1	PRINT mode lamp

Operation

The operation is similar to test command 46-01. (In MANUAL)

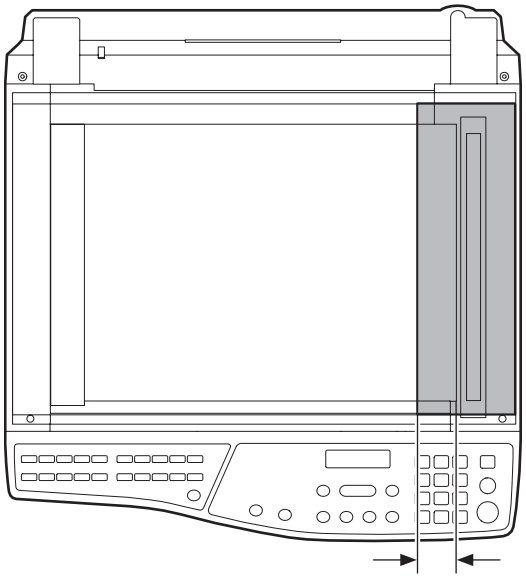
OK/ERR display in AUTO

<When OK>

```
53-08 SPF AUTO
AUTO  100% **    OK
```

<When ERR>

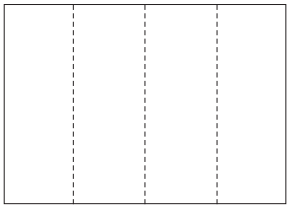
```
53-08 SPF AUTO
AUTO  100% **   ERR
```



* Use a black chart (UKOG-0011QSZZ) or prepare a chart as shown below.
  Chart size: 300 x 100, prepared with cutting sheet No. 791 (Black) or an equivalent one.

  Reason: To prevent erroneous detection by disturbing light of a fluorescent lamp, etc.

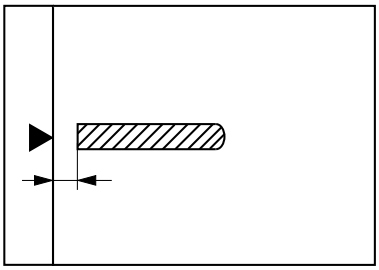
The size of the black chart (UKOG-0011QSZZ) is 297 x 420. Divide it into four for use.



6. RSPF (SPF) mode sub scanning direction magnification ratio adjustment

Note: Before performing this adjustment, be sure to check that the OC mode adjustment in copying has been completed.

1) Put a scale on the original table as shown below, and make a normal copy (100%) on the front and the back surfaces to make a test chart.



Note: Since the printed copy is used as a test chart, put the scale in parallel with the edge lines.

2) Set the test chart on the RSPF and make a duplex copy (D-D or D-S) in the normal ratio (100%).
3) Compare the scale image and the actual image.
   If necessary, perform the following adjustment procedures.
4) Execute TC 48-05.
5) The current front surface sub scanning direction magnification ratio correction value is displayed in two digits on the display section.
   To select SIDE1 and SIDE2, use [←/→] keys.
6) Enter the set value and press the start key.

   When adjusting the RSPF, use [2-SIDED COPY] key to select single/duplex after entering the one page print mode, performing 2-page single copy.

Mode	Display item	Default	LED
Sub scan magnification ratio adjustment on the surface of SPF/ RSPF document	SIDE1	50	COPY mode lamp
Sub scan magnification ratio adjustment on the surface of RSPF document	SIDE2	50	PRINT mode lamp

* When there is no document in SPF, copy is inhibited.

<Adjustment specification>

Adjustment mode	Spec value	TC	Set value	Setting range
Sub scanning direction magnification ratio (SPF/RSPF mode)	At normal: ±1.0%	48-5	Add 1: 0.1% increase Reduce 1: 0.1% decrease	1 – 99

7. Automatic black level correction

a. Cases when the adjustment is required

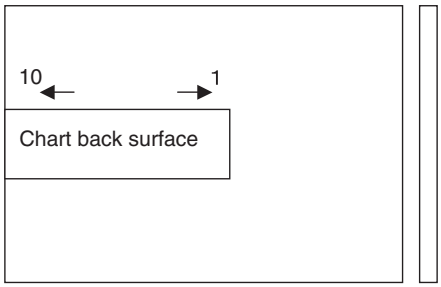
1) When the main PWB is replaced.
2) When the EEPROM in the main PWB is replaced.
3) When "U2" trouble occurs.
4) When repairing or replacing the optical section.

b. Adjustment procedure

Used to acquire the black level target value used for the black level adjustment of white balance.

When test command 63-02 is executed, the current correction value is displayed in 3 digits of 12bit hexadecimal number.

Place the gray gradation chart (UKOG-0162FCZZ) used as the correction document so that the density 10 (black side) comes on the left side and that the chart is upside down at the center of the plate left center.



When [ENTER/START] key is pressed, the mirror base unit scans the chart and calculates the correction value.

After completion of correction, the corrected value is displayed on the LCD.

* Default: 0
* If the value is set to the default, operation is made with 0x60.

c. Operation

1) Initial display

```
63-02 BLACK LEVEL
                0
```

2) [ENTER/START] Correction start

```
63-02 BLACK LEVEL
EXECUTING...
```

<During canceling - When C/CA is pressed->

After canceling, the machine goes into the sub code entry standby mode.

```
THE JOB IS BEING
CANCELED.
```

3) After execution

```
63-02 BLACK LEVEL
            *** OK
```

3) In case of an error

```
63-02 BLACK LEVEL
            *** ERR
```

[10] TEST COMMAND, FAX SOFT SWITCH, TROUBLE CODES

1. Entering the test command mode

To enter the serviceman test command mode, press the keys as follows:

[#] key → [*] key → [C] key → [*] key

[MENU] key → [9] key → [*] key → [8] key → [#] key → [7] key

To cancel the test command mode, press the [CA] key.

2. Key rule

[10KEY]: Entry of MAIN CODE/SUB CODE
Selection of an item
Setup of an adjustment value in case of test commands for adjustment

[←/→]: Selection of MAIN CODE/SUB CODE
Selection of an item

[ENTER/START]: Settlement
<In case of test commands for print>
[ENTER]: Settlement (Without print)
[START]: Settlement/Print

[C]: (Interrupting operation check) Returns to the upper hierarchy.
In case of test command of operation check, terminates the operations.

[CA]: Exits from the test command mode.
For a test command of adjustment, the display returns to the initial display (00-00).

3. List of test commands

Main code	Sub code	Contents
1	01	Mirror scan (SCAN CHK)
	02	Mirror home position sensor (MHPS) status display (MHP-SENSOR)
	06	Mirror scan aging (SCAN AGING)
2	01	Single Paper Feeder (SPF) aging (SPF AGING)
	02	SPF sensor status display (SPF SENSOR)
	03	SPF motor operation check (SPF MOTOR CHK)
	06	RSPF resist clutch operation check (RSPF RES.CHK)
	08	SPF paper feed solenoid operation check (SPF SPUS CHK)
	09	RSPF reverse solenoid operation check (RSPF SPFS CHK)
	10	RSPF paper exit gate solenoid operation check (RSPF SGS CHK)
3	03	Shifter operation check (SHIFTER CHK)
5	01	Operation panel display check (LCD/LED CHK)
	02	Fusing lamp, cooling fan operation check (HT LAMP CHK)
	03	Copy lamp ON check (C-LAMP CHK)
6	01	Paper feed solenoid (CPFS1, CPFS2, MPFS) operation check (PSOL CHK)
	02	Resist roller solenoid (RRS) operation check (RES.R SOL CHK)
7	01	Check of warm-up display and aging with JAM (W-UP/AGING)
	06	Interval aging (INTERVAL AGING)
	08	Shift to copy with warm-up display (W-UP C-MODE)
8	01	Developing bias output (DVLP BIAS SET.)
	02	Main charger output (Grid HIGH) (MHV(H) SET.)
	03	Main charger output (Grid LOW) (MHV(L) SET.)
	06	Transfer charger output (THV SET.)

Main code	Sub code	Contents
9	01	Duplex motor normal rotation check (DPLX ROT.)
	02	Duplex motor reverse rotation check (DPLX ROT.REV.)
	04	Duplex motor rotating speed adjustment (DPLX ROT.SPEED)
10	00	Toner motor operation (TONER MOTOR)
14	00	Cancel of trouble other than U2 (TRBL CANC.)
16	00	U2 trouble cancel (U2 TRBL CANC.)
22	04	JAM total counter display (JAM TTL CNT)
	05	Total counter display (TTL CNT)
	08	SPF counter display (SPF CNT)
	11	FAX-related counter display
	12	Drum counter display (DRUM CNT)
	13	CRUM type display (CRUM TYPE)
	14	ROM version display (ROM VER.)
	16	Duplex counter display (DPLX CNT)
	17	Copy counter display (COPIES CNT)
	18	Printer counter display (PRT.CNT)
	19	Scanner mode counter display (S-MODE CNT)
	21	Scanner counter display (SCAN CNT)
	22	SPF JAM counter display (S JAM CNT)
24	01	JAM total counter clear (JAM TTL CLR.)
	04	SPF counter clear (SPF CLR.)
	05	Duplex counter clear (DPLX CLR.)
	07	Drum counter clear (DRUM CLR.)
	08	Copy counter clear (COPIES CLR.)
	09	Printer counter clear (PRT.CLR.)
	10	FAX counter clear (FAX CLR.)
	13	Scanner counter clear (SCAN CLR.)
	14	SPF JAM total counter clear (S JAM TTL CLR.)
	15	Scanner mode counter clear (S-MODE CLR.)
25	01	Main motor operation check (MAIN MOTOR CHK)
	10	Polygon motor operation check (LSU CHK)

Main code	Sub code	Contents
26	02	(R)SPF setting (SPF/RSPF)
	03	Second cassette setting (2ND TRAY)
	04	Main unit duplex setting (DPLX)
	06	Destination setting (DESTINATION)
	07	Machine conditions check (CPM)
	20	Rear edge void setting (END EDGE)
	30	CE mark support control ON/OFF (CE MARK)
	38	Cancel of stop at drum life over (DRUM LIFE END)
	39	Memory capacity check (MEM.CHK)
	40	Polygon motor OFF time setting (Time required from completion of printing to turning OFF the motor) (LSU MOTOR OFF)
	42	Transfer ON timing control setting (TC ON TIMING)
	43	Side void amount setting (SIDE VOID)
	62	Energy-save mode copy lamp setting (C-LAMP E-S)
30	01	Paper sensor status display (P-SENSOR)
41	06	OC cover float detection level (OC FLOAT LEVEL)
43	01	Fusing temperature setting (Normal copy) (FU TEMP)
	04	Fusing temperature setting in multi coy (FU TEMP MULTI)
	05	Fusing temperature setting in duplex copy (FU TEMP DPLX)
	09	Postcard size paper fusing control setting (FU CTR P-CARD) (Japan model only)
	11	Postcard size paper fusing temperature setting (FU TEMP P-CARD) (Japan model only)
	14	Fusing start temperature setting (FU TEMP START)
46	01	Copy density adjustment (300dpi) (EXP.LEVEL 300)
	02	Copy density adjustment (600dpi) (EXP.LEVEL 600)
	12	Density adjustment in the FAX mode (Collective adjustment)
	13	FAX mode density adjustment (normal text)
	14	FAX mode density adjustment (Fine text)
	15	FAX mode density adjustment (Super fine)
	18	Image contrast adjustment (300dpi) (GAMMA 300)
	19	Exposure mode setting (AE MODE)
	20	SPF exposure correction (EXP.LEVEL SPF)
	29	Image contrast adjustment (600dpi) (GAMMA 600)
	30	AE limit adjustment (AE LIMIT)
	31	Image sharpness adjustment (SHARPNESS)
	32	Copier color reproduction setting (COLOR REAPPEAR)
	39	FAX mode sharpness adjustment
48	01	Mains can/sub scan direction magnification ratio (COPY MAG.)
	05	SPF/RSPF mode sub scan direction magnification ratio in copying (SPF/RSPF MAG.)

Main code	Sub code	Contents
49	01	Download mode (DOWNLOAD MODE)
50	01	Lead edge image position (LEAD EDGE)
	06	Copy lead edge position adjustment (SPF/RSPF) (SPF/RSPF EDGE)
	10	Print center offset adjustment (PRT.OFF-CENTER)
	12	Document feed off-center adjustment (ORG.OFF-CENTER)
	18	Memory reverse position adjustment in duplex copy (DPLX REVERSE)
	19	Duplex copy rear edge void adjustment (DPLX END EDGE)
51	02	Resist amount adjustment (RESIST ADJ.)
53	08	SPF scan position automatic adjustment (SPF AUTO)
61	03	HSYNC output check (LSU CHK)
63	01	Shading check (SHADING CHK)
	02	Black level automatic correction (BLACK LEVEL)
64	01	Self print (1by2 mode) (SELF PRT.)
66	01	FAX soft SW setting
	02	FAX soft SW initializing (excluding the adjustment values)
	03	FAX PWB memory check
	04	Signal send mode (Max. value)
	05	Signal send mode (Soft SW set value)
	07	Image memory content print
	10	Image memory content clear
	11	300bps signal send (Max. value)
	12	300bps signal send (Soft SW set value)
	13	Dial test
	17	DTMF signal send (Max. value)
	18	DTMF signal send (Soft SW set value)
	21	FAX information print
	24	FAST SRAM clear
	30	TEL/LIU status change check
	32	Receive data check
	33	Signal detection check
	34	Communication time measurement
	37	Speaker sound volume setting
	38	Time setting/check
	41	CI signal check
	70	Print hold passcode check

4. Descriptions of various test commands

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>1</td><td>01</td><td>Mirror scan (SCAN CHK)</td><td>
[Function]
When [ENTER/START] key is pressed, the home position is checked and the mirror base performs full scan at the speed of the set magnification ratio.
During operation, the set magnification ratio is displayed.
The mirror home position sensor status is displayed with the “COPY mode lamp”. (When the mirror is in the home position, the lamp lights up.)
During operation, the copy lamp lights up.
When [C] key is pressed, if the operation is on the way, it is terminated and the machine goes to the sub code entry standby mode.
[Operation]
1) Initial display
<pre>01-01 SCAN CHK
            - 100% +</pre>
2) [←]
<pre>01-01 SCAN CHK
            - 99% +</pre>
3) [ENTER/START]
<pre>01-01 SCAN CHK
EXECUTING... - 78% +</pre>
2) [ZOOM]
<pre>01-01 SCAN CHK
            - 78% +</pre>
2) [→]
<pre>01-01 SCAN CHK
            - 101% +</pre>
</td></tr>
<tr><td></td><td>02</td><td>Mirror home position sensor (MHPS) status display (MHP-SENSOR)</td><td>
[Function]
Monitors the mirror home position sensor, and makes the "COPY mode lamp" turn on during the sensor ON status.
[Operation]
1) Initial display
<pre>01-02 MHP-SENSOR
EXECUTING...</pre>
</td></tr>
<tr><td></td><td>06</td><td>Mirror scan aging (SCAN AGING)</td><td>
[Function]
When [ENTER/START] key is pressed, the mirror base performs full scan at the speed of the set magnification ratio.
During operation, the set magnification ratio is displayed.
After 3sec, the mirror base performs full scan again.
* When [ENTER/START] key is pressed once, the ready lamp remains OFF.
The mirror home position sensor status is displayed on the "COPY mode lamp." (The lamp is ON when the mirror is in the home position.)
During aging, the copy lamp is ON.
[Operation]
The operation is similar to test command 1-01.
</td></tr>
<tr><td>2</td><td>01</td><td>Single Paper Feeder (SPF) aging (SPF AGING)</td><td>
[Function]
When [ENTER/START] key is pressed, the set magnification ratio is acquired and single-face document transport is performed in the case of SPF or duplex document transport in the case of R-SPF.
However, the operating conditions don't matter and the operation is not stopped even in case of a jam. Also the magnification ratio is displayed on the LCD.
[Operation]
The operation is similar to test command 1-01.
</td></tr>
<tr><td></td><td>02</td><td>SPF sensor status display (SPF SENSOR)</td><td>
[Function]
The ON/OFF status of the SPF sensors can be checked with the LCD.
When a sensor is ON, the sensor name is displayed on the LCD.
<table>
<tr><th>Sensor</th><th>Display item</th></tr>
<tr><td>Document set sensor</td><td>SPID</td></tr>
<tr><td>SPF document transport sensor</td><td>SPPD</td></tr>
<tr><td>SPF paper feed cover open/close sensor</td><td>SDSW</td></tr>
</table>
[Operation]
1) Initial display
<pre>02-02 SPF SENSOR</pre>
2) When the sensor is ON:
<pre>02-02 SPF SENSOR
SPID SPPD SDSW</pre>
</td></tr>
<tr><td></td><td>03</td><td>SPF motor operation check (SPF MOTOR CHK)</td><td>
[Function]
When [ENTER/START] key is pressed, the motor rotates for 10sec at the speed corresponding to the set magnification ratio.
[Operation]
The operation is similar to test command 1-01.
</td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation

2	06	RSPF resist clutch operation check (RSPF RES.CHK)	**[Function]**
			When [ENTER/START] key is pressed, the RSPF resist clutch (SRRC) repeats ON for 500ms and OFF for 500ms 20 times.
			[Operation]
			1) Initial display
			`02-06 RSPF RES.CHK`
			`EXECUTING...`

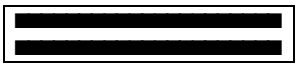
	08	SPF paper feed solenoid operation check (SPF SPUS CHK)	**[Function]**
			The SPF paper feed solenoid (SPUS) repeats ON for 500ms and OFF for 500ms 20 times by the use of the solenoid drive control Bios.
			[Operation]
			1) Initial display
			`02-08 SPF SPUS CHK`
			`EXECUTING...`

	09	RSPF reverse solenoid operation check (RSPF SPFS CHK)	**[Function]**
			The SPF reverse solenoid (SPFS) repeats ON for 500ms and OFF for 500ms 20 times by the use of the solenoid drive control Bios.
			[Operation]
			1) Initial display
			`02-09 RSPF SPFS CHK`
			`EXECUTING...`

	10	RSPF paper exit gate solenoid operation check (RSPF SGS CHK)	**[Function]**
			The SPF paper exit gate solenoid (SGS) repeats ON for 500ms and OFF for 500ms 20 times by the use of the solenoid drive control Bios.
			[Operation]
			1) Initial display
			`02-10 RSPF SGS CHK`
			`EXECUTING...`

3	03	Shifter operation check (SHIFTER CHK)	**[Function]**
			The shifter is moved back and forth in four reciprocations.
			[Operation]
			1) Initial display
			`03-03 SHIFTER CHK`
			`EXECUTING...`

Main code	Sub code	Contents	Details of function/operation

5	01	Operation panel display check (LCD/LED CHK)	**[Function]**
			<LED check mode (All ON/Individual ON)>
			When [ENTER/START] key is pressed, all the LCD's on the operation panel are turned ON (all pixels ON).
			After 5sec of ON, the machine goes into the sub code entry standby mode.
			When [MODE SWITCH] key is pressed under the all ON state, the mode is shifted to the individual ON mode, where the LED's are turned on one by one from the left upper end to the left lower side then from the right upper side to the right lower side. (All the pixels of LCD are lighted simultaneously.) After lighting all the LCD's sequentially, all the LCD's are lighted simultaneously. After 5sec from lighting all the LCD's simultaneously, the machine goes into the sub code entry standby mode. (Cycle of individual ON mode: ON 300ms, OFF 20ms)
			When [C] key is pressed in the LED check mode, the machine goes into the sub code entry standby mode.
			When [START] key is pressed, the machine goes into the key input check mode.
			<Key input check mode>
			When the machine goes into the key input check mode, the LCD displays 0.
			When any key is pressed after pressing a key on the operation panel, "+1" is added to the value.
			Once a key is pressed, it is not recounted.
			When [START] key is pressed, counting is made and the machine goes into the LED ON check mode (LED all ON status) after 3sec.
			When [C] key is pressed for the first time, it is counted. When it is pressed for the second time, the machine goes into the sub code entry mode.
			When [CA] key is pressed for the first time, it is counted. When it is pressed for the second time, the machine goes out from the test command mode.
			(Note in the key input check mode)
			• Be sure to press [START] key at the last. (If it is pressed on the way, the machine goes into the LED ON check mode.) (LED all ON status)
			• Multi key input is ignored.
			[Operation]
			<LED check mode (All ON/Individual ON)>
			1) Initial display
			 
			2) When [MODE SWITCH] key is pressed, the machine goes into the individual ON mode.
			<Key input check mode>
			1) Initial display
			`05-01 LCD/LED CHK.`
			`0`
			2) [ENTER/START]
			`05-01 LCD/LED CHK.`
			`**`

	02	Fusing lamp, cooling fan operation check (HT LAMP CHK)	**[Function]**
			When [ENTER/START] key is pressed, the fusing lamp repeats ON for 500ms and OFF for 500ms 5 times. During this period, the cooling fan motor rotates.
			[Operation]
			1) Initial display
			`05-02 HT LAMP CHK`
			`EXECUTING...`

	03	Copy lamp ON check (C-LAMP CHK)	**[Function]**
			When [ENTER/START] key is pressed, the copy lamp turns ON for 5sec.
			[Operation]
			1) Initial display
			`05-03 C-LAMP CHK`
			`EXECUTING...`

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>6</td><td>01</td><td>Paper feed solenoid (CPFS1, CPFS2, MPFS) operation check (PSOL CHK)</td><td>
[Function]
When [ENTER/START] key is pressed, the selected paper feed solenoid repeats ON for 500ms and OF for 500ms 20times.
When [←/→/10KEY] is pressed, the paper feed solenoid setting is switched.
<table>
<tr><th>Code number</th><th>Setting</th><th>Remark</th></tr>
<tr><td>0</td><td>CPFS1</td><td></td></tr>
<tr><td>1</td><td>CPFS2</td><td>Operation is possible only when No. 2 cassette is installed.</td></tr>
<tr><td>2</td><td>MPFS</td><td></td></tr>
</table>
[Operation]
1) Initial display
<pre>06-01 PSOL CHK
0:CPFS1</pre>
2) [←/10KEY]
<pre>06-01 PSOL CHK
2:MPFS</pre>
2) [→/10KEY]
<pre>06-01 PSOL CHK
1:CPFS2</pre>
3) [ENTER/START]
<pre>06-01 PSOL CHK
EXECUTING...</pre>
4) Returns to the initial display.
</td></tr>
<tr><td></td><td>02</td><td>Resist roller solenoid (RRS) operation check (RES.R SOL CHK)</td><td>
[Function]
When [ENTER/START] key is pressed, the resist solenoid repeats ON for 500ms and OFF for 500ms 20 times.
[Operation]
1) Initial display
<pre>06-02 RES.R SOL CHK
EXECUTING...</pre>
</td></tr>
<tr><td>7</td><td>01</td><td>Check of warm-up display and aging with JAM (W-UP/ AGING)</td><td>
[Function]
Copying is repeated to make the set quantity of copies.
When the test command is executed, warm-up is started and warm-up time is added for every second from 0 and displayed.
When warm-up is completed, addition is stopped. When [CA] key is pressed, the ready lamp lights up. After that, enter the copy quantity with [10KEY] and press [ENTER/START] key to repeat copying of the set quantity (interval 0sec).
To cancel the test command, turn off the power or execute a test command which causes hardware reset.
[Operation]
1) Initial display
<pre>07-01 W-UP/AGING
                    0</pre>
2) After 10sec
<pre>07-01 W-UP/AGING
                   10</pre>
</td></tr>
<tr><td></td><td>06</td><td>Interval aging (INTERVAL AGING)</td><td>
[Function]
Copying is repeated to make the set quantity of copies.
When the test command is executed, warm-up is performed and the ready lamp is lighted.
Enter the copy quantity with the [10KEY] and press [ENTER/START] key, and copying is executed to make the set quantity of copies, and the ready state is kept for 3sec, and copying is executed again to make the set quantity of copies. These operations are repeated.
To cancel the test command, turn off the power or execute a test command which executes hardware reset.
[Operation]
1) Initial display (Basic display of copy)
<pre>READY TO COPY
  100%   A4   0</pre>
</td></tr>
<tr><td></td><td>08</td><td>Shift to copy with warm-up display (Shift to equivalent to CA key) (W-UP C-MODE)</td><td>
[Function]
Enter the test command code, and warm-up is started and warm-up time is counted for every second from 0 and displayed.
When [CA] key is pressed during counting up, "0" is displayed on the display and counting is stopped. However, warm-up is continued.
After completion of warm-up, counting is terminated. (The aging function is removed from test command 7-01.)
[Operation]
1) Initial display
<pre>07-08 W-UP C-MODE
                    0</pre>
2) After 10sec
<pre>07-08 W-UP C-MODE
                   10</pre>
</td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation

8	01	Developing bias output (DVLP BIAS SET.)	**[Function]**
			When [ENTER/START] key is pressed, the developing bias signal is turned ON for 30sec.
			When, however, an actual output value is measured, use test command 25-01.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`08-01 DVLP BIAS SET.`
			`EXECUTING...`

	02	Main charger output (Grid HIGH) (MHV(H) SET.)	**[Function]**
			When [ENTER/START] key is pressed, the main charger is outputted for 30sec in the grid voltage HIGH move.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`08-02 MHV(H) SET.`
			`EXECUTING...`

	03	Main charger output (Grid LOW) (MHV(L) SET.)	**[Function]**
			When [ENTER/START] key is pressed, the main charger is outputted for 30sec in the grid voltage LOW move.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`08-03 MHV(L) SET.`
			`EXECUTING...`

	06	Transfer charger output (THV SET.)	**[Function]**
			When [ENTER/START] key is pressed, the transfer charger is outputted for 30sec.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`08-03 THV SET.`
			`EXECUTING...`

9	01	Duplex motor normal rotation check (DPLX ROT.)	**[Function]**
			Use the duplex motor Bios to drive the duplex motor in the normal direction (paper exit direction) for 30sec.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`09-01 DPLX ROT.`
			`EXECUTING...`

	02	Duplex motor reverse rotation check (DPLX ROT.REV.)	**[Function]**
			Use the duplex motor Bios to drive the duplex motor in the reverse direction for 30sec.
			After completion of this process, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`09-02 DPLX ROT.REV.`
			`EXECUTING...`

	04	Duplex motor rotating speed adjustment (DPLX ROT.SPEED)	**[Function]**
			When this Test Command is executed, the currently set value is displayed.
			Enter the adjustment value with [10KEY] and press [START] key. The entered value is stored and the machine goes into the sub code entry standby mode. The greater the set value is, the higher the speed is. The smaller the set value is, the lower the speed is. (Setting range: 1 - 13, Default: 6)
			1) Initial display
			`09-04 DPLX ROT.SPEED`
			`6( 1-13)`
			2) [→/10KEY]
			`09-04 DPLX ROT.SPEED`
			`7( 1-13)`
			2) [←/10KEY]
			`09-04 DPLX ROT.SPEED`
			`5( 1-13)`
			3) [ENTER/START]
			`09-04 DPLX ROT.SPEED`
			`7( 1-13)`

Main code	Sub code	Contents	Details of function/operation

10	00	Toner motor operation (TONER MOTOR)	**[Function]**
			When [ENTER/START] key is pressed, the toner motor is rotated for 30sec.
			After completion of this process, the machine goes into the main code entry standby mode.
			[Operation]
			1) Initial display
			`10-00 TONER MOTOR`
			`EXECUTING...`

14	00	Cancel of trouble other than U2 (TRBL CANC.)	**[Function]**
			Used to cancel troubles other than U2.
			* Cancel troubles such as H trouble which writes data into EEPROM, and perform hardware reset.
			[Operation]
			1) Initial display
			`14-00 TRBL CANC.`
			`CLEARED`

16	00	U2 trouble cancel (U2 TRBL CANC.)	**[Function]**
			Used to cancel U2 trouble.
			When [ENTER/START] key is pressed, check sum of the total counter in the EEPROM is rewritten and hardware reset is made.
			[Operation]
			1) Initial display
			`16-00 U2 TRBL CANC.`
			`CLEARED`

22	04	JAM total counter display (JAM TTL CNT)	**[Function]**
			The JAM total counter is displayed.
			[Operation]
			1) Initial display
			`22-04 JAM TTL CNT`
			`***,***`

	05	Total counter display (TTL CNT)	**[Function]**
			The total counter value is displayed.
			[Operation]
			1) Initial display
			`22-05 TTL CNT`
			`***,***`

	08	SPF counter display (SPF CNT)	**[Function]**
			The SPF counter is displayed.
			[Operation]
			1) Initial display
			`22-08 SPF CNT`
			`***,***`

	11	FAX-related counter display	**[Function]**
			The FAX-related counter is displayed.
			[Operation]
			1) Initial display
			`SELECT COUNTER`
			`1:PAGE 2:TIME`
			* [CLEAR] key: Returns to the main-sub code input display.
			2) Select 1
			`SEND PAGE:xxx,xxx`
			`RECV PAGE:xxx,xxx`
			("xxx,xxx" is the current value.)
			* [CLEAR] key: Returns to "1) Initial display".
			2) Select 2
			`TX TIME:xxxx:xx.xx`
			`RX TIME:xxxx:xx.xx`
			("xxxx: xxx. xx" is the current value.)
			* [CLEAR] key: Returns to "1) Initial display".

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>22</td><td>12</td><td>Drum counter display (DRUM CNT)</td><td>[Function]
The drum counter is displayed.
[Operation]
1) Initial display
<pre>22-12 DRUM CNT
,</pre></td></tr>
<tr><td></td><td>13</td><td>CRUM type display (CRUM TYPE)</td><td>[Function]
When the test command is executed, the CRUM type currently set (written) in the CRUM chip is displayed.
<table><tr><th>Code number</th><th>CRUM type</th><th>Display item</th></tr><tr><td>00</td><td>Not set</td><td>0</td></tr><tr><td>01</td><td>BTA-A</td><td>BTA-A</td></tr><tr><td>02</td><td>BTA-B</td><td>BTA-B</td></tr><tr><td>03</td><td>BTA-C</td><td>BTA-C</td></tr><tr><td>04</td><td>FO-A</td><td>FO-A</td></tr><tr><td>99</td><td>Conversion</td><td>CONVERSION</td></tr></table>[Operation]
1) The CRUM type is displayed.
<pre>22-13 CRUM TYPE
01:BTA-A</pre></td></tr>
<tr><td></td><td>14</td><td>ROM version display (ROM VER.)</td><td>[Function]
The P-ROM version is displayed.
Press [←/→/10KEY] to switch the display version.
<table><tr><th>Code number</th><th>Version</th><th>Display item</th></tr><tr><td>0</td><td>Main unit Program</td><td>MAIN PROG.</td></tr><tr><td>1</td><td>F-IMC Program</td><td>F-IMC PROG.</td></tr><tr><td>2</td><td>LCD DATA</td><td>LCD DATA</td></tr></table>[Operation]
1) Initial display
<pre>22-14 ROM VER.
MAIN PROG. 00.00</pre>2) [→/10KEY]
<pre>22-14 ROM VER.
F-IMC PROG. 00.00</pre>2) [←/10KEY]
<pre>22-14 ROM VER.
LCD DATA 00.00</pre></td></tr>
<tr><td></td><td>16</td><td>Duplex counter display (DPLX CNT)</td><td>[Function]
The duplex counter is displayed.
[Operation]
1) Initial display
<pre>22-16 DPLX CNT
,</pre></td></tr>
<tr><td></td><td>17</td><td>Copy counter display (COPIES CNT)</td><td>[Function]
The copy counter is displayed.
[Operation]
1) Initial display
<pre>22-17 COPIES CNT
,</pre></td></tr>
<tr><td></td><td>18</td><td>Printer counter display (PRT.CNT)</td><td>[Function]
The printer counter is displayed.
[Operation]
1) Initial display
<pre>22-18 PRT.CNT
,</pre></td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation

22	19	Scanner mode counter display (S-MODE CNT)	**[Function]**
			The scanner mode counter is displayed.
			[Operation]
			1) Initial display
			`22-19 S-MODE CNT`
			`***,***`

	21	Scanner counter display (SCAN CNT)	**[Function]**
			The scanner counter is displayed.
			[Operation]
			1) Initial display
			`22-21 SCAN CNT`
			`***,***`

	22	SPF JAM counter display (S JAM CNT)	**[Function]**
			The SPF JAM counter is displayed.
			[Operation]
			1) Initial display
			`22-22 S JAM CNT`
			`***,***`

24	01	JAM total counter clear (JAM TTL CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the JAM total counter is cleared to 0 and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-01 JAM TTL CLR.`
			`CLEARED 000,000`

	04	SPF counter clear (SPF CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the SPF counter value is cleared to 0 and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-04 SPF CLR.`
			`CLEARED 000,000`

	05	Duplex counter clear (DPLX CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the duplex counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-05 DPLX CLR.`
			`CLEARED 000,000`

	07	Drum counter clear (DRUM CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the drum counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-07 DRUM CLR.`
			`CLEARED 000,000`

	08	Copy counter clear (COPIES CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the copy counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-08 COPIES CLR.`
			`CLEARED 000,000`

Main code	Sub code	Contents	Details of function/operation

24	09	Printer counter clear (PRT.CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the printer counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-09 PRT.CLR.`
			`CLEARED 000,000`

	10	FAX counter clear (FAX CLR.)	**[Function]**
			When PRINT switch is pressed, the FAX count value is set to 0 and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-10 FAX CLR.`
			`CLEARED 000,000`

	13	Scanner counter clear (SCAN CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the scanner counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-13 SCAN CLR.`
			`CLEARED 000,000`

	14	SPF JAM total counter clear (S JAM TTL CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the SPF JAM total counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-14 S JAM TTL CLR.`
			`CLEARED 000,000`

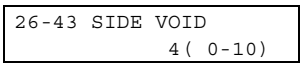
	15	Scanner mode counter clear (S-MODE CLR.)	**[Function]**
			When [ENTER/START] key is pressed, the scanner mode counter value is cleared to 0, and "000,000" is displayed on the LCD.
			[Operation]
			1) Initial display
			`24-15 S-MODE CLR.`
			`CLEARED 000,000`

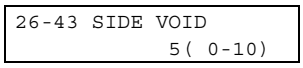
25	01	Main motor operation check (MAIN MOTOR CHK)	**[Function]**
			When [ENTER/START] key is pressed, the main motor (and the duplex motor in the case of a duplex model) is operated for 30sec.
			To reduce toner consumption, if the developing unit is installed, the developing bias, the main charger, and the grid are also outputted.
			In this case, laser discharge is required when stopping the motor, the polygon motor is also operated at the same time. Check for installation of the developing unit. If it is not installed, the high voltage above is not outputted and only the motor is rotated.
			To check the developing bias, install the developing unit.
			After completion of 30sec operation, the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`25-01 MAIN MOTOR CHK`
			`EXECUTING...`

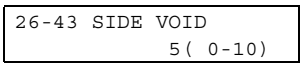
	10	Polygon motor operation check (LSU CHK)	**[Function]**
			When [ENTER/START] key is pressed, the Bios is called to rotate the polygon motor for 30sec.
			After completion of 30sec operation, the operation is turned off with the Bios and the machine goes into the sub code entry standby mode.
			[Operation]
			1) Initial display
			`25-10 LSU CHK`
			`EXECUTING...`

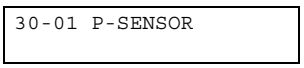
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>26</td><td>02</td><td>(R)SPF setting (SPF/RSPF)</td><td>
[Function]
When this test command is executed, the current set SPF is displayed. Enter the code number corresponding to the desired SPF and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>SPF</th><th>Display item</th></tr>
<tr><td>0</td><td>SPF NO</td><td>SPF OFF</td></tr>
<tr><td>1</td><td>SPF YES</td><td>SPF ON</td></tr>
<tr><td>2</td><td>RSPF YES</td><td>RSPF ON</td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>03</td><td>Second cassette setting (2ND TRAY)</td><td>
[Function]
When this test command is executed, the current set second cassette is displayed. Enter the code number corresponding to the desired second cassette and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Second cassette</th><th>Display item</th></tr>
<tr><td>0</td><td>Second cassette NO</td><td>OFF</td></tr>
<tr><td>1</td><td>Second cassette YES</td><td>ON</td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>04</td><td>Main unit duplex setting (DPLX)</td><td>
[Function]
When this test command is executed, the current set duplex is displayed. Enter the code number corresponding to the desired duplex and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Duplex</th><th>Display item</th></tr>
<tr><td>0</td><td>Duplex NO</td><td>OFF</td></tr>
<tr><td>1</td><td>Duplex YES</td><td>ON</td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>06</td><td>Destination setting (DESTINATION)</td><td>
[Function]
When this test command is executed, the current set destination is displayed. Enter the code number corresponding to the desired destination and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Destination</th><th>Display item</th></tr>
<tr><td>0</td><td>Inch series</td><td>INCH</td></tr>
<tr><td>1</td><td>EX Japan AB series</td><td>AB</td></tr>
<tr><td>2</td><td>Japan AB series</td><td>–</td></tr>
<tr><td>3</td><td>China (EX Japan AB series + China paper support)</td><td>CHINA</td></tr>
</table>
∗ For Japan AB series, there is no schedule for production.
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>07</td><td>Machine conditions check (CPM)</td><td>
[Function]
When this test command is executed, the current machine setting is displayed.
<table>
<tr><th>CPM</th><th>Coy quantity</th><th>Remark</th></tr>
<tr><td>10 CPM</td><td>10</td><td></td></tr>
<tr><td>12 CPM</td><td>12</td><td></td></tr>
<tr><td>13 CPM</td><td>13</td><td></td></tr>
<tr><td>14 CPM</td><td>14</td><td></td></tr>
<tr><td>15 CPM</td><td>15</td><td></td></tr>
<tr><td>16 CPM</td><td>16</td><td></td></tr>
</table>
[Operation]
1) The machine setting is displayed.
<pre>
26-07 CPM
10 CPM
</pre>
</td></tr>
<tr><td></td><td>20</td><td>Rear edge void setting (END EDGE)</td><td>
[Function]
When this test command is executed, the current set rear edge void is displayed. Enter the code number corresponding to the desired rear edge void and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Setting</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>Rear edge void NO</td><td>OFF</td><td></td></tr>
<tr><td>1</td><td>Rear edge void YES</td><td>ON</td><td>Default</td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
</table>

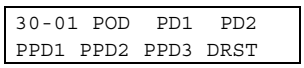
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>26</td><td>30</td><td>CE mark support control ON/OFF (CE MARK)</td><td>
[Function]
When this test command is executed, the current set CE mark support control is displayed. Enter the code number corresponding to the desired CE mark support control and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Setting</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>CE mark support control OFF</td><td>OFF</td><td>Default (100V series)</td></tr>
<tr><td>1</td><td>CE mark support control ON</td><td>ON</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>38</td><td>Cancel of stop at drum life over (DRUM LIFE END)</td><td>
[Function]
When this test command is executed, the current setting is displayed. Enter the code number corresponding to the desired setting and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Setting</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>Stop at drum life over</td><td>STOP</td><td>Default</td></tr>
<tr><td>1</td><td>Cancel of stop at drum life over</td><td>NONSTOP</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>39</td><td>Memory capacity check (MEM.CHK)</td><td>
[Function]
When the test command is executed, the currently installed SDRAM of the main unit is displayed.
<table>
<tr><th>Code number</th><th>Setting</th><th>Remark</th></tr>
<tr><td>8</td><td>8 MBYTE</td><td></td></tr>
</table>
[Operation]
1) Memory capacity display
<pre>
26-39 MEM.CHK
8 MBYTE
</pre>
</td></tr>
<tr><td></td><td>40</td><td>Polygon motor OFF time setting (Time required from completion of printing to turning OFF the motor) (LSU MOTOR OFF)</td><td>
[Function]
When this test command is executed, the current setting is displayed. Enter the code number corresponding to the desired setting and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Setting</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>0sec</td><td>0 SEC.</td><td></td></tr>
<tr><td>1</td><td>30sec</td><td>30 SEC.</td><td>Default</td></tr>
<tr><td>2</td><td>60sec</td><td>60 SEC.</td><td></td></tr>
<tr><td>3</td><td>90sec</td><td>90 SEC.</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>42</td><td>Transfer ON timing control setting (TC ON TIMING)</td><td>
[Function]
When this test command is executed, the currently set value of the transfer ON timing is displayed (initial display), and the set value is saved. (Setting range: 0 – 9, Default: 5)
<table>
<tr><th>Code</th><th>Setting</th><th>Remark</th></tr>
<tr><td>0</td><td>0 msec</td><td></td></tr>
<tr><td>1</td><td>40 msec</td><td></td></tr>
<tr><td>2</td><td>–30 msec</td><td></td></tr>
<tr><td>3</td><td>–20 msec</td><td></td></tr>
<tr><td>4</td><td>–10 msec</td><td></td></tr>
<tr><td>5</td><td>0 msec</td><td>Default</td></tr>
<tr><td>6</td><td>+10 msec</td><td></td></tr>
<tr><td>7</td><td>+20 msec</td><td></td></tr>
<tr><td>8</td><td>+30 msec</td><td></td></tr>
<tr><td>9</td><td>+40 msec</td><td></td></tr>
</table>
∗ The default “5” of transfer ON timing is “330ms passed from PS release.”
∗ When set to “0,” it is the same as setting to “5.”
[Operation]
The operation is similar to test command 21-01.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>26</td><td>43</td><td>Side void amount setting (SIDE VOID)</td><td>
[Function]
When this test command is executed, the currently set code of the side void quantity is displayed (initial display), and the set data are saved. (Setting range: 0 – 10, Default: 4 (= One side 2.0mm))
<table>
<tr><th>Code</th><th>Setting</th><th>Remark</th></tr>
<tr><td>0</td><td>0 mm</td><td></td></tr>
<tr><td>1</td><td>0.5 mm</td><td></td></tr>
<tr><td>2</td><td>1.0 mm</td><td></td></tr>
<tr><td>3</td><td>1.5 mm</td><td></td></tr>
<tr><td>4</td><td>2.0 mm</td><td>Default</td></tr>
<tr><td>5</td><td>2.5 mm</td><td></td></tr>
<tr><td>6</td><td>3.0 mm</td><td></td></tr>
<tr><td>7</td><td>3.5 mm</td><td></td></tr>
<tr><td>8</td><td>4.0 mm</td><td></td></tr>
<tr><td>9</td><td>4.5 mm</td><td></td></tr>
<tr><td>10</td><td>5.0 mm</td><td></td></tr>
</table>
∗ When the adjustment value is increased by 1, the side void is changed as follows:
Side void adjustment: The side void is increased by 0.5mm. (The side void of “Set value x 0.5mm” is made.)
[Operation]
1) Initial display


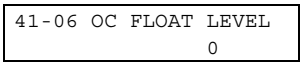
2) [10KEY]


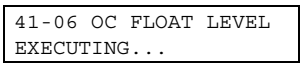
3) [ENTER/START]


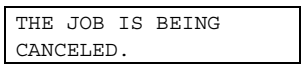
</td></tr>
<tr><td></td><td>62</td><td>Energy-save mode copy lamp setting (C-LAMP E-S)</td><td>
[Function]
Used to set half-ON /OFF of the copy lamp in the pre-heat mode.
When this test command is executed, the current set code number is displayed. Enter the desired code number and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code number</th><th>Setting</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>Copy lamp OFF</td><td>OFF</td><td></td></tr>
<tr><td>1</td><td>Copy lamp half-ON</td><td>ON</td><td>Default</td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td>30</td><td>01</td><td>Paper sensor status display (P-SENSOR)</td><td>
[Function]
The paper sensor status is displayed on the LCD.
<table>
<tr><th>Sensor</th><th>Display item</th><th>Remark</th></tr>
<tr><td>Paper exit sensor</td><td>POD</td><td></td></tr>
<tr><td>No. 1 tray paper width sensor</td><td>PD1</td><td></td></tr>
<tr><td>Paper entry sensor</td><td>PPD1</td><td></td></tr>
<tr><td>Duplex sensor</td><td>PPD2</td><td></td></tr>
<tr><td>No. 2 tray paper feed sensor</td><td>PPD3</td><td></td></tr>
<tr><td>New drum cartridge sensor</td><td>DRST</td><td></td></tr>
</table>
∗ Since the manual paper feed sensor is a single bypass sensor, its status is not displayed.
∗ The width sensor is available only in the FAX models.
[Operation]
1) Initial display


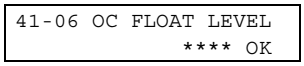
2) When sensor ON


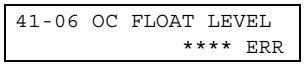
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>41</td><td>06</td><td>OC cover float detection level (OC FLOAT LEVEL)</td><td>
[Function]
When this test command is executed, the current set value is displayed. When [ENTER/START] key is pressed, the mirror base unit moves to the SPF scan position to acquire the OC cover float detection level.
When the mirror base unit returns to the home position, the acquired value is displayed.
If the detection level is not acquired, ERR display is made. (Default: 0)
Note that, this test command must be executed with the OC cover closed.
* If the value is 0, float detection is not performed in normal jobs.
[Operation]
1) Initial display


2) [ENTER/START]


<Canceling - when C/CA key is pressed->
After canceling, the machine goes into the sub code entry standby mode.


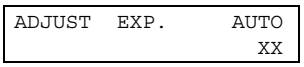
3) When the level is acquired:


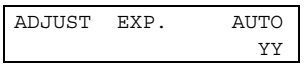
3) When the level is not acquired:


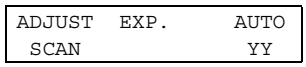
</td></tr>
<tr><td>43</td><td>01</td><td>Fusing temperature setting (Normal copy) (FU TEMP)</td><td>
[Function]
When this test command is executed, the current set code number is displayed. Press [←/→/10KEY] key to change the setting and press [ENTER/START] key to save the setting into the EERPOM. The machine goes into the sub code entry standby mode.
<table>
<tr><th>Code</th><th>Set temperature (°C)</th><th>Remark</th></tr>
<tr><td>0</td><td>160</td><td></td></tr>
<tr><td>1</td><td>165</td><td></td></tr>
<tr><td>2</td><td>170</td><td></td></tr>
<tr><td>3</td><td>175</td><td></td></tr>
<tr><td>4</td><td>180</td><td></td></tr>
<tr><td>5</td><td>185</td><td></td></tr>
<tr><td>6</td><td>190</td><td>Default</td></tr>
<tr><td>7</td><td>195</td><td></td></tr>
<tr><td>8</td><td>200</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>04</td><td>Fusing temperature setting in multi coy (FU TEMP MULTI)</td><td>
[Function]
For 20th sheet or later in multi copy, the fusing temperature is automatically changed from the temperature set with test command 43-1 to the temperature set with this test command.
When this test command is executed, the current set code number is displayed. Enter the code number and press [ENTER/START] key to change the setting.
<table>
<tr><th>Code</th><th>Set temperature (°C)</th><th>Remark</th></tr>
<tr><td>0</td><td>155</td><td></td></tr>
<tr><td>1</td><td>160</td><td></td></tr>
<tr><td>2</td><td>165</td><td></td></tr>
<tr><td>3</td><td>170</td><td>Default</td></tr>
<tr><td>4</td><td>175</td><td></td></tr>
<tr><td>5</td><td>180</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
</table>

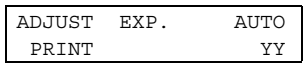
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>43</td><td>05</td><td>Fusing temperature setting in duplex copy (FU TEMP DPLX)</td><td>
[Function]
In the case of duplex copy, the shift temperature set with this test command is applied to the fusing temperature.
When this test command is executed, the current set code number is displayed.
Enter the desired code number and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code</th><th>Shift temperature (°C)</th><th>Remark</th></tr>
<tr><td>0</td><td>±0</td><td>Default</td></tr>
<tr><td>1</td><td>-8</td><td></td></tr>
<tr><td>2</td><td>-6</td><td></td></tr>
<tr><td>3</td><td>-4</td><td></td></tr>
<tr><td>4</td><td>-2</td><td></td></tr>
<tr><td>5</td><td>±0</td><td></td></tr>
<tr><td>6</td><td>+2</td><td></td></tr>
<tr><td>7</td><td>+4</td><td></td></tr>
<tr><td>8</td><td>+6</td><td></td></tr>
<tr><td>9</td><td>+8</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>09</td><td>Postcard size paper fusing control setting (FU CTR P-CARD) (Japan model only)</td><td>
[Function]
When this test command is executed, the current set code number is displayed.
Enter the desired code number and press [ENTER/START] key to save the setting.
<table>
<tr><th>Code</th><th>Shift temperature (°C)</th><th>Display item</th><th>Remark</th></tr>
<tr><td>0</td><td>Cancel</td><td>OFF</td><td>Default</td></tr>
<tr><td>1</td><td>Setting</td><td>ON</td><td></td></tr>
</table>
* Setting" is default for Japan. However, there is no schedule for production of the Japan model.
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>11</td><td>Postcard size paper fusing temperature setting (FU TEMP P-CARD) (Japan model only)</td><td>
[Function]
When this test command is executed, the current set code number is displayed.
When [←/→/10KEY] key is pressed, setting is changed. When [ENTER/START] key is pressed, setting is written into the EEPROM. The machine goes into the sub code entry standby mode.
<table>
<tr><th>Code</th><th>Shift temperature (°C)</th><th>Remark</th></tr>
<tr><td>0</td><td>160</td><td></td></tr>
<tr><td>1</td><td>165</td><td></td></tr>
<tr><td>2</td><td>170</td><td></td></tr>
<tr><td>3</td><td>175</td><td></td></tr>
<tr><td>4</td><td>180</td><td></td></tr>
<tr><td>5</td><td>185</td><td></td></tr>
<tr><td>6</td><td>190</td><td></td></tr>
<tr><td>7</td><td>195</td><td>Default</td></tr>
<tr><td>8</td><td>200</td><td></td></tr>
</table>
* Applied only to the Japan model. However, there is no schedule to produce the Japan model. Setting is reflected only when ON with test command 43-09.
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td></td><td>14</td><td>Fusing start temperature setting (FU TEMP START)</td><td>
[Function]
When this test command is started, the currently set code number is displayed.
Press [←/→/10KEY] to switch the setting, and press [ENTER/START] key to save it to the EEPROM. The machine goes to the sub code entry standby mode.
<table>
<tr><th>Code</th><th>Set temperature (°C)</th><th>Remark</th></tr>
<tr><td>0</td><td>160</td><td></td></tr>
<tr><td>1</td><td>165</td><td></td></tr>
<tr><td>2</td><td>170</td><td></td></tr>
<tr><td>3</td><td>175</td><td></td></tr>
<tr><td>4</td><td>180</td><td></td></tr>
<tr><td>5</td><td>185</td><td></td></tr>
<tr><td>6</td><td>190</td><td></td></tr>
<tr><td>7</td><td>195</td><td>Default</td></tr>
<tr><td>8</td><td>200</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 21-01.
</td></tr>
</table>

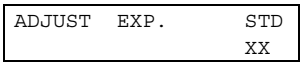
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>01</td><td>Copy density adjustment (300dpi) (EXP.LEVEL 300)</td><td>
[Function]
Copy density is set for each mode.
When this test command is executed, the current se value is displayed in 2 digits (Default: 50).
Change the set value and press [START] key to make a copy under the set value.
When the set value is increased, the copy becomes darker. When the set value is decreased, the copy becomes lighter.
In this case, only Exp.3 copy is made. When, however, the setting is made to make darker copy, Exp.1 and Exp.5 copies also become darker. When made to lighter copy, Exp1. and Exp.5 copies become lighter, too.
Press [←/→] key to switch the mode. The set value of the selected mode is displayed on the LCD. (Adjustment value: 1 – 99)
The setting procedure of the magnification ratio is the same as that to copy operation.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>AE mode (300dpi)</td><td>AE</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode (300dpi)</td><td>TEXT</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>50</td><td>SCAN mode lamp</td></tr>
<tr><td>TS mode (TEXT)(300dpi)</td><td>TSTXT</td><td>50</td><td>PRINT mode lamp
SCAN mode lamp</td></tr>
<tr><td>TS mode (AE)(300dpi)</td><td>TSAE</td><td>50</td><td>COPY mode lamp
SCAN mode lamp</td></tr>
</table>
[Operation]
1) Initial display
<pre>46-01 EXP.LEVEL 300
AE   100% 50(1-99)</pre>
2) [←] Mode selection
<pre>46-01 EXP.LEVEL 300
TSAE 100% 50(1-99)</pre>
2) [→] Mode selection
<pre>46-01 EXP.LEVEL 300
TEXT 100% 50(1-99)</pre>
3) [10KEY] Value entry
<pre>46-01 EXP.LEVEL 300
AE   100% 62(1-99)</pre>
4) [START] Fixing and printing value (No change on the LCD)
* Print is started in the set mode.
<pre>46-01 EXP.LEVEL 300
AE   100% 62(1-99)</pre>
4) To fix the set value without printing, press [Enter] key.
<pre>46-01 EXP.LEVEL 300
AE   100% 62(1-99)</pre>
* To cancel manual feed paper empty MSG, press any key.
* When performing the AE mode exposure adjustment, place the test chart on the document table so that the center area of 10cm is not covered.
</td></tr>
<tr><td></td><td>02</td><td>Copy density adjustment (600dpi) (EXP.LEVEL 600)</td><td>
[Function]
Copy density is set for each mode.
When this test command is executed, the current se value is displayed in 2 digits (Default: 50).
Change the set value and press [START] key to make a copy under the set value.
When the set value is increased, the copy becomes darker. When the set value is decreased, the copy becomes lighter.
In this case, only Exp.3 copy is made. When, however, the setting is made to make darker copy, Exp.1 and Exp.5 copies also become darker. When made to lighter copy, Exp1. and Exp.5 copies become lighter, too.
Press [←/→] key to switch the mode. The set value of the selected mode is displayed on the LCD. (Adjustment value: 1 – 99)
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>AE mode (600dpi)</td><td>AE</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode (600dpi)</td><td>TEXT</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>50</td><td>SCAN mode lamp</td></tr>
<tr><td>TS mode (TEXT) (600dpi)</td><td>TSTXT</td><td>50</td><td>PRINT mode lampSCAN mode lamp</td></tr>
<tr><td>TS mode (AE) (600dpi)</td><td>TSAE</td><td>50</td><td>COPY mode lampSCAN mode lamp</td></tr>
</table>
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

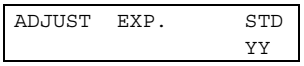
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>12</td><td>Density adjustment in the FAX mode (Collective adjustment)</td><td>
[Function]
When [START] key is pressed, scan is executed with the entered exposure adjustment value and the data stored on the FAX side is rewritten into the entered value.
All data of the exposure adjustment values are rewritten into the same value.
For the density adjustment table data, refer to TC46-13 (density adjustment (normal text) in the FAX mode).
[Operation]
1) Initial display


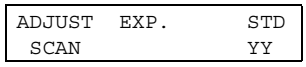
("XX" is the exposure adjustment value of normal text stored on the FAX side.)
2) Enter a 2-digit value as the exposure adjustment value.


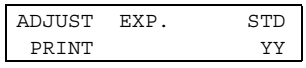
("YY" is the entered exposure adjustment value.)
3) Scan is started (self print), and the LED of [START] key is turned off.


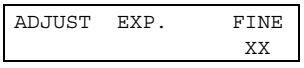
4) Print is started (self print).


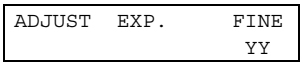
After completion of printing, returns to “2)” display.
</td></tr>
<tr><td></td><td>13</td><td>FAX mode density adjustment (normal text)</td><td>
[Function]
Scan is started with the exposure adjustment value entered with [START] key, and the stored data of the selected mode on the FAX side is rewritten into the input value.
Density adjustment value data table
<table>
<tr><th>Mode</th><th>Photo</th><th>Exposure adjustment value</th></tr>
<tr><td>STD (Normal text)</td><td>off</td><td></td></tr>
<tr><td rowspan="2">Fine (Fine text)</td><td>on</td><td></td></tr>
<tr><td>off</td><td></td></tr>
<tr><td rowspan="2">Sfine (Super fine)</td><td>on</td><td></td></tr>
<tr><td>off</td><td></td></tr>
</table>
When initializing each data: 50
[Operation]
1) Initial display


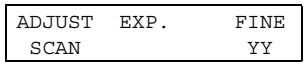
("XX" is the corresponding exposure adjustment value of normal text mode stored on the FAX side.)
2) Enter a 2-digit value as the exposure adjustment value with [10KEY].


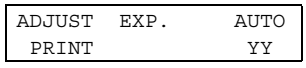
("YY" is the entered exposure adjustment value.)
3) Scan is started (self print), and the LED of [START] key is turned off.


4) Print is started (self print).


After completion of printing, returns to “2)” display.
</td></tr>
<tr><td></td><td>14</td><td>FAX mode density adjustment (Fine text)</td><td>
[Function]
When [START] key is pressed, scan is started with the entered exposure adjustment value and the data of the selected mode on the FAX side is changed to the entered value.
For the density adjustment value table data, refer to TC46-13 (FAX mode density adjustment (normal text).)
[Operation]
1) Initial display


("XX" is the corresponding exposure adjustment value of the fine text mode stored on the FAX side.)
2) Enter a 2-digit value as the exposure adjustment value with [10KEY].


("YY" is the entered exposure adjustment value.)
3) Scan start (self print)


4) Print start (self print)


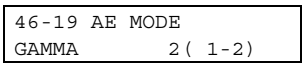
After completion of printing, returns to “2)” display.
</td></tr>
</table>

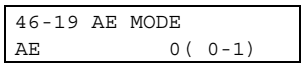
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>15</td><td>FAX mode density adjustment (Super fine)</td><td>
[Function]
When [START] key is pressed, scan is started with the entered exposure adjustment value and the data of the selected mode on the FAX side is changed to the entered value.
For the density adjustment value table data, refer to TC46-13 (FAX mode density adjustment (normal text).)
[Operation]
1) Initial display
<pre>ADJUST EXP.   S-FINE
                    XX</pre>
("XX" is the corresponding exposure adjustment value of the super fine mode stored on the FAX side.)
2) Enter a 2-digit value as the exposure adjustment value with [10KEY].
<pre>ADJUST EXP.   S-FINE
                    YY</pre>
("YY" is the entered exposure adjustment value.)
3) Scan start (self print)
<pre>ADJUST EXP.   S-FINE
 SCAN   YY</pre>
4) Print start (self print)
<pre>ADJUST EXP.   S-FINE
 PRINT   YY</pre>
After completion of printing, returns to “2)” display.
</td></tr>
<tr><td></td><td>18</td><td>Image contrast adjustment (300dpi) (GAMMA 300)</td><td>
[Function]
Contrast is set for each mode.
When this test command is executed, the current se value is displayed in 2 digits (Default: 50).
Change the set value and press [START] key to make a copy under the set value.
When the set value is increased, the contrast becomes higher. When the set value is decreased, the contrast becomes lower.
In this case, only Exp.3 copy is made. When, however, the setting is made to make higher contrast, Exp.1 and Exp.5 copies also become in higher contrast. When made to a lower contrast, Exp1. and Exp.5 copies become lower contrast, too.
Press [←/→] key to switch the mode. The set value of the selected mode is displayed on the LCD. (Adjustment value: 1 – 99)
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>AE mode (300dpi)</td><td>AE</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode (300dpi)</td><td>TEXT</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>50</td><td>SCAN mode lamp</td></tr>
<tr><td>TS mode (TEXT) (300dpi)</td><td>TSTXT</td><td>50</td><td>PRINT mode lamp
SCAN mode lamp</td></tr>
<tr><td>TS mode (AE) (300dpi)</td><td>TSAE</td><td>50</td><td>COPY mode lamp
SCAN mode lamp</td></tr>
</table>
∗ No density display on LCD.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

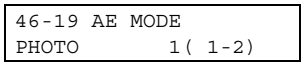
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>19</td><td>Exposure mode setting (AE MODE)</td><td>
[Function]
<γ table setting>
When this test command is executed, the code number of the current set gamma table is displayed. (Default: Japan -1/Ex Japan -2)
Enter the code number corresponding to the desired gamma table, and press [←/→] key to change the mode and write into the EEPROM.

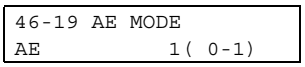
<AE operation mode>
When setting the γ table, press [→] key to change to the AE operation mode, and the current set code number of the AE operation mode is displayed. (Default: 0)
Enter the code number corresponding to the desired AE operation mode and press [←/→] key to change the mode and write into the EEPROM.

<PHOTO image process setting>
When [→] key is pressed in AE operation mode setting, the mode is changed to the PHOTO image process setting and the code number of the current set PHOTO image process setting is displayed. (Default: 0)
Enter the code number corresponding to the desired PHOTO image process setting and press [←/→] key to change the mode and write into the EEPROM.

<table>
<tr><th>Mode</th><th>Display item</th><th>Code number</th><th>Setting content</th><th>Remark</th></tr>
<tr><td rowspan="2">γ</td><td rowspan="2">GAMMA</td><td>1</td><td>Image quality priority mode</td><td>Japan default</td></tr>
<tr><td>2</td><td>Toner consumption priority mode</td><td>EX Japan default</td></tr>
<tr><td rowspan="2">AE</td><td rowspan="2">AE</td><td>0</td><td>Lead edge stop</td><td>Default</td></tr>
<tr><td>1</td><td>Real time process</td><td></td></tr>
<tr><td rowspan="2">PHOTO</td><td rowspan="2">PHOTO</td><td>1</td><td>Error diffusion process</td><td>Default</td></tr>
<tr><td>2</td><td>Dither process</td><td></td></tr>
</table>
[Operation]
1) Initial display
<γ table setting>


2) [→] Mode selection


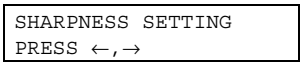
2) [←] Mode selection


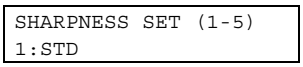
3) [10KEY] Value input


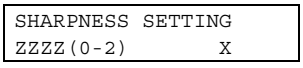
4) [ENTER/START] Save the set value. The machine goes to the sub code entry standby mode.
</td></tr>
<tr><td></td><td>20</td><td>SPF exposure correction (EXP.LEVEL SPF)</td><td>
[Function]
Used to adjust the exposure correction amount in the SPF mode. The adjustment is made by adjusting Vref voltage variation for the OC mode.
When this test command is executed, the current set value is displayed in 2 digits (Default: 50). Change the set value and press [START] key to save the setting and make a copy.
When the set value is increased, copy becomes darker. When the set value is decreased, copy becomes lighter. (Adjustment range: 1 – 99)

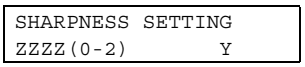
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>Remark</th></tr>
<tr><td>SPF</td><td>SPF</td><td>50</td><td></td></tr>
</table>
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

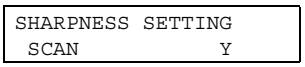
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>29</td><td>Image contrast adjustment (600dpi) (GAMMA 600)</td><td>
[Function]
Contrast is set for each mode.
When this test command is executed, the current se value is displayed in 2 digits (Default: 50).
Change the set value and press [START] key to make a copy under the set value.
When the set value is increased, the contrast becomes higher. When the set value is decreased, the contrast becomes lower.
In this case, only Exp.3 copy is made. When, however, the setting is made to make higher contrast, Exp.1 and Exp.5 copies also become in higher contrast. When made to a lower contrast, Exp1. and Exp.5 copies become lower contrast, too.
Press [←/→] key to switch the mode. The set value of the selected mode is displayed on the LCD. (Adjustment value: 1 – 99)
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>AE mode (600dpi)</td><td>AE</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode (600dpi)</td><td>TEXT</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>50</td><td>SCAN mode lamp</td></tr>
<tr><td>TS mode (TEXT)(600dpi)</td><td>TSTXT</td><td>50</td><td>PRINT mode lamp
SCAN mode lamp</td></tr>
<tr><td>TS mode (AE)(600dpi)</td><td>TSAE</td><td>50</td><td>COPY mode lamp
SCAN mode lamp</td></tr>
</table>
∗ No density display on LCD.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>30</td><td>AE limit adjustment (AE LIMIT)</td><td>
[Function]
Used to set the limit value in AE and AE (toner save).
Change the setting and press [ENTER/START] key to write the setting into the EEPROM. The machine goes into the sub code entry standby mode.
By pressing [←/→] key, setting is changed. (Setting range: 0 – 31, Default: 0)
<table>
<tr><th>Mode</th><th>Display item</th><th>Remark</th></tr>
<tr><td>Limit value for AE</td><td>AE</td><td></td></tr>
<tr><td>Limit value for AE (toner save)</td><td>TSAE</td><td></td></tr>
</table>
<Remark>
When test command 26-06 (Destination setting) or test command 46-19 Auto Exposure mode is changed, the setting of this test command is also changed to the default in connection.
[Operation]
The operation is similar to test command 46-19.
</td></tr>
<tr><td></td><td>31</td><td>Image sharpness adjustment (SHARPNESS)</td><td>
[Function]
Used to adjust sharpening/blurring of image in each mode.
<table>
<tr><th>Image quality</th><th>Setting No</th><th>Remark</th></tr>
<tr><td>Blurring</td><td>0</td><td></td></tr>
<tr><td>Standard</td><td>1</td><td>Default</td></tr>
<tr><td>Sharpening</td><td>2</td><td></td></tr>
</table>
When this test command is executed, warm-up and shading are performed and the current set value is displayed. (Default: 1)
Change the set value and press [START] key to make a copy under the set conditions.
To change the mode, press [←/→] key. The code number of the selected mode is dip0slayed on the LCD.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default setting</th><th>LED</th></tr>
<tr><td>AE mode</td><td>AE</td><td>1</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode</td><td>TEXT</td><td>1</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>1</td><td>SCAN mode lamp</td></tr>
<tr><td>TS mode (TEXT)</td><td>TSTXT</td><td>1</td><td>PRINT mode lamp
SCAN mode lamp</td></tr>
<tr><td>TS mode (AE)</td><td>TSAE</td><td>1</td><td>COPY mode lamp
SCAN mode lamp</td></tr>
</table>
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

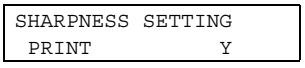
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>46</td><td>32</td><td>Copier color reproduction setting (COLOR REAPPEAR)</td><td>
[Function]
Used to set color reproduction in each mode. Colors easy to be copied and colors difficult to be copied can be switched.
<table>
<tr><th>Set value</th><th>Colors easy to be copied</th><th>Colors difficult to be copied</th></tr>
<tr><td>0</td><td>Purple, Blue, Red</td><td>Yellow, Green, Water blue</td></tr>
<tr><td>1</td><td>Water blue, Green, Blue</td><td>Purple, Red, Yellow</td></tr>
<tr><td>2</td><td>Yellow, Red, Green</td><td>Blue, Water blue, Purple</td></tr>
</table>
∗ This setting has virtually no effect on black-and-white documents.
When this test command is executed, warm-up and shading are performed and the current set value is displayed. (Default: 0)
Press [START] key to make a copy under the set conditions. At that time, color components are changed for used in copying.
To change the mode, press [←/→] key. The code number of the selected mode is dip0slayed on the LCD.
<table>
<tr><th>Specification component</th><th>Setting No</th><th>Remark</th></tr>
<tr><td>Green</td><td>0</td><td>Default</td></tr>
<tr><td>Red</td><td>1</td><td></td></tr>
<tr><td>Blue</td><td>2</td><td></td></tr>
</table>
<table>
<tr><th>Mode</th><th>Display item</th><th>Default setting</th><th>LED</th></tr>
<tr><td>AE mode (including TS)</td><td>AE</td><td>0</td><td>COPY mode lamp</td></tr>
<tr><td>TEXT mode (including TS)</td><td>TEXT</td><td>0</td><td>PRINT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO</td><td>0</td><td>SCAN mode lamp</td></tr>
</table>
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>39</td><td>FAX mode sharpness adjustment</td><td>
[Function]
When [START] key is pressed, scan is started with the entered sharpness adjustment value, and the data of the selected mode stored on the FAX side is changed to the entered value.
Sharpness adjustment value data table
<table>
<tr><th>Mode</th><th>Sharpness adjustment value</th></tr>
<tr><td>1: STD</td><td></td></tr>
<tr><td>2: FINE</td><td></td></tr>
<tr><td>3: S-FINE</td><td></td></tr>
<tr><td>4: FINE/PHOTO</td><td></td></tr>
<tr><td>5: S-FINE/PHOTO</td><td></td></tr>
</table>
When initializing each data: 1
[Operation]
1) Initial display


2) [←/→] or after 2sec
Every time when [→] key is pressed, the second line is changed in the sequence of No. 1 → 2 → 3 → 4 → 5 → 1.
When [←] key is pressed, the sequence is reversed.


3) Select the arrow key 1-5, and the LED of [START] key is lighted.


("ZZZZ" is the mode selected among STD, FINE, S-FINE, FINE/PHOTO, and S-FINE/PHOTO.)
("X" is the corresponding sharpness adjustment value of the selected mode stored on the FAX side.)
∗ [CLEAR] key: Returns to “2)” display.
4) Enter a one-digit value (0-2) as the sharpness adjustment value with [10KEY].


("Y" is the entered sharpness adjustment value.)
∗ [CLEAR] key: Returns to “2)” display.
5) Scan start (self print)


6) Print start (self print)


After completion of printing, returns to “4)” display.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>48</td><td>01</td><td>Main scan/sub scan direction magnification ratio (COPY MAG.)</td><td>
[Function]
Used to adjust the magnification ratio in the main scan (front/rear) direction and sub scan direction. Enter the adjustment value with [10KEY]. Press [START] key to save the set value and make a copy. (When the adjustment value is increased by 1, the magnification ratio is increased by 0.1%.)
The adjustment mode can be changed by pressing [←/→] key. (Adjustment range: 1 – 99, Default: 50)
<table>
<tr><th>Mode</th><th>Display item</th><th>Default value</th><th>LED</th></tr>
<tr><td>Main scan direction magnification ratio</td><td>F-R</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>OC mode sub scan direction magnification ratio</td><td>SCAN</td><td>50</td><td>SCAN mode lamp</td></tr>
</table>
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>05</td><td>SPF/RSPF mode sub scan direction magnification ratio in copying (SPF/RSPF MAG.)</td><td>
[Function]
Used to display the current SPF/RSPF mode sub scan direction magnification ratio on the LCD. When [START] key is pressed, the entered data is acquired and saved into the EEPROM, and a copy is made. (When the set value is increased by 1, the magnification ratio is increased by 0.1%.) (Adjustment range: 1 – 99, Default: 50)
When adjusting the RSPF, use [2-SIDED COPY] key to select single/duplex after entering the one page print mode, performing 2-page single copy.
For printing, regardless of the density mode and the density level,
Density mode = MANUAL
Density level = 3
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Sub scan magnification ratio adjustment on the surface of SPF/RSPF document</td><td>SIDE1</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>Sub scan magnification ratio adjustment on the surface of RSPF document *1</td><td>SIDE2</td><td>50</td><td>PRINT mode lamp</td></tr>
</table>
∗ When there is no document in SPF, copy is inhibited.
*1: Only when RSPF is installed. If installed, skipped.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>49</td><td>01</td><td>Download mode
(DOWNLOAD MODE)</td><td>
[Function]
When this test command is executed, "DLOWNLOAD MODE" is displayed on the LCD and the machine goes into the program writing mode from PC to Flash ROM.
Use the writing tool on the PC and write the program.
During writing, the display shows as follows:
After completion of download, turn OFF/ON the power to reset.
<table>
<tr><th>Status</th><th>Display item</th></tr>
<tr><td>Download data receiving</td><td>RECEIVING</td></tr>
<tr><td>Loader function transfer</td><td>LOADER COPYING</td></tr>
<tr><td>Date delete start</td><td>FLASH ERASE</td></tr>
<tr><td>Data write (Boot section)</td><td>BOOT WRITING</td></tr>
<tr><td>Data write (Program section)</td><td>PROGRAM WRITING</td></tr>
<tr><td>Data write (EEPROM)</td><td>E2PROM WRITING</td></tr>
<tr><td>Data write (LCD)</td><td>LCD DATE WRITING</td></tr>
<tr><td>During SUM CHECK</td><td>FLASH ROM SUM CHECK</td></tr>
<tr><td>During BOOT SUM CHECK</td><td>BOOT SUM CHECK</td></tr>
<tr><td>During EEPROM SUM CHECK</td><td>EEPROM SUM CHECK</td></tr>
<tr><td>Download complete</td><td>DOWNLOAD COMPLETE!</td></tr>
</table>
In case of an error in download, the following message is displayed on the LCD.
<table>
<tr><th>Error status</th><th>Display item</th></tr>
<tr><td>PC data receiving</td><td>E-01 PC TRANS</td></tr>
<tr><td>Loader function transfer</td><td>E-02 LOADER COPY</td></tr>
<tr><td>FLASH ROM delete</td><td>E-03 FLASH ERASE</td></tr>
<tr><td>Boot section FLASH ROM write</td><td>E-04 BOOT WRITE</td></tr>
<tr><td>Program section FLASH ROM write</td><td>E-05 PROGRAM WRITE</td></tr>
<tr><td>Loader section SUM CHECK</td><td>E-06 LOADER SUM</td></tr>
<tr><td>Boot section SUM CHECK</td><td>E-07 BOOT SUM</td></tr>
<tr><td>Program section SUM CHECK</td><td>E-08 PROGRAM SUM</td></tr>
<tr><td>E2PROM SUM CHECK</td><td>E-09 E2PROM SUM</td></tr>
<tr><td>E2PROM write</td><td>E-10 E2PROM WRITE</td></tr>
<tr><td>E2PROM read Verify</td><td>E-11 E2PROM READ</td></tr>
<tr><td>E2PROM collating Verify</td><td>E-12 E2PROM COLLATE</td></tr>
<tr><td>Boot section lens check</td><td>E-13 BOOT LENGTH</td></tr>
<tr><td>Program section lens check</td><td>E-14 PROGRAM LENGTH</td></tr>
<tr><td>E2PROM lens check</td><td>E-15 E2PROM LENGTH</td></tr>
<tr><td>Total data size check</td><td>E-16 DATE SIZE</td></tr>
<tr><td>IMC communication error</td><td>E-17 IMC TRANS</td></tr>
<tr><td>IMC FRASH ROM write</td><td>E-18 IMC FLASH WRITE</td></tr>
<tr><td>LCD section lens check</td><td>E-19 LCD DATE LENGTH</td></tr>
<tr><td>LCD section FLASH ROM write</td><td>E-20 LCD DATE WRITE</td></tr>
<tr><td>LCD section SUM CHECK</td><td>E-21 LCD DATE SUM</td></tr>
</table>
To enter the download mode, there is a method to use key operations as well as to use a test command. With the power OFF, press and hold [CA] + [←], turn on the power.
[Operation]
1) Initial display
<pre>DOWNLOAD MODE</pre>
</td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation
50	01	Lead edge image position (LEAD EDGE)	**[Function]** Used to adjust the copy image position and the lead edge void amount on copy paper. The adjustment is made by adjusting the image scan start position at 100% and the print start position (resist roller ON timing). When this test command is executed, the current set value is displayed in 2 digits. (Center value: 50) When [←/→] key is pressed, the setting mode and the display are changed. Enter the adjustment value and press [START] key to save the set value and make a copy. When the adjustment is made by the main cassette paper feed, the adjustment values of all the paper feed ports become the same. (When the set value is increased by 1, shift is made by 0.1mm.)

Mode	Display item	Default	LED
Print start position (Main cassette paper feed)	TRAY1	50	COPY mode lamp Main cassette lamp
(*) Print start position (2nd cassette paper feed)	TRAY2	50	COPY mode lamp 2nd cassette lamp
Print start position (Manual paper feed)	MFT	50	COPY mode lamp Manual feed lamp
Image lead edge void amount	DEN-A	50	PRINT mode lamp
Image scan start position	RRC-A	50	SCAN mode lamp
Image rear edge void amount	DEN-B	50	COPY mode lamp PRINT mode lamp SCAN mode lamp

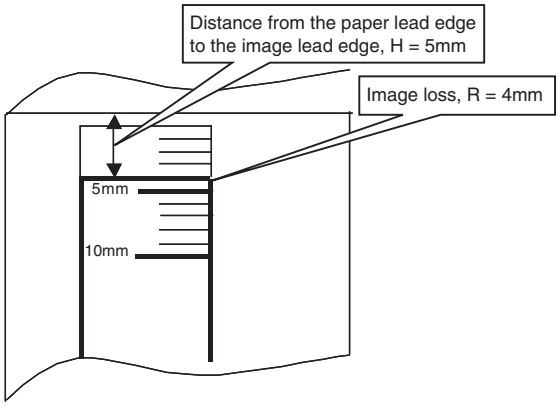
(*): Support for the installation models. For non-installation models, skip.

[Adjustment procedure]

1) Set the print start position (A: COPY mode lamp ON), the lead edge void amount (B: PRINT mode lamp ON), the scan start position (C: SCAN mode lamp) to zero, and make a copy of the scale at 100%.
2) Measure the image loss (Rmm) of the scale.
   Set C = 10 x R (mm). (Example: Set to 40.)
   When the value of C is increased by 10, the image loss is decreased by 1mm. (Default: 50)
3) Measure the distance (Hmm) from the paper lead edge to the image print start position.
   Set A = 10 x H (mm). (Example: Set to 50.)
   When the value of A is increased by 10, the image lead edge is moved to the paper lead edge by 1mm. (Default: 50).
4) Set the lead edge void amount to B = 50 (2.5mm). (Default: 50)
   When the value of B is increased by 10, the void is extended by about 0.1mm. (For 25 or less, however, the void amount is regarded as 0.)

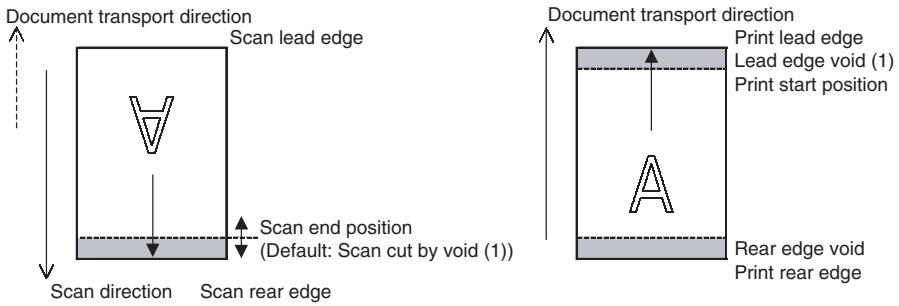
* The SFP adjustment is made by adjusting the SPF image scan start position after OC adjustment.
* When paper is discharged, the shifter is operated.

(Example)

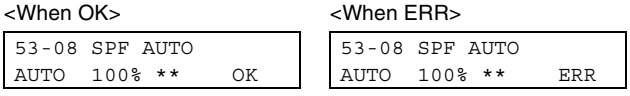


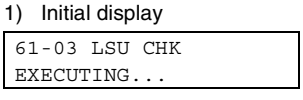
[Operation]
The operation is similar to test command 46-01.

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>50</td><td>06</td><td>Copy lead edge position adjustment (SPF/RSPF) (SPF/RSPF EDGE)</td><td>
[Function]
Used to adjust the SPF copy lead edge.
When the adjustment value of the document scan position adjustment is increased by 1, the scan start timing is advanced by 0.1mm.
The print result is shifted to the opposite direction of the scan start position.
The adjustment mode can be changed by pressing [←/→] key. (Adjustment range: 1 – 99, Default:50)
When scanning a back surface of document, the mode must be changed to operate the RSPF by pressing [2-SIDED COPY] key.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Front surface document scan position adjustment</td><td>SIDE1</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>(*) Back surface document scan position adjustment</td><td>SIDE2</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>Rear edge void adjustment (SPF)</td><td>END</td><td>50</td><td>SCAN mode lamp</td></tr>
</table>
(*) : Support for the installation models. For non-installation models, skip.
∗ When there is no document in the SPF, copy is inhibited.
∗ When paper is discharged, the shifter is operated.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>10</td><td>Print center offset adjustment (PRT.OFF-CENTER)</td><td>
[Function]
Used to adjust the center offset position of copy images on copy paper and that in scanning document.
When this test command is executed, the current set value is displayed.
Enter the adjustment value and press [START] key to save the setting and make a copy. (When the set value is changed by 1, the center is shifted by 0.1mm.)
When the adjustment value is increased, the center is shifted to right. When decreased, the center is shifted to left.
The modes can be selected by pressing [←/→] key.
When the set value is changed largely, the area outside the shading area may be scanned to cause black streaks on the edges. When the RSPF is used, select the mode for use of the RSPF by [2-SIDED COPY] key.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Print center offset (Main cassette paper feed)</td><td>TRAY1</td><td>50</td><td>COPY mode lamp
Main cassette lamp</td></tr>
<tr><td>(*) Print center offset (2nd cassette paper feed)</td><td>TRAY2</td><td>50</td><td>COPY mode lamp
2nd cassette lamp</td></tr>
<tr><td>Print center offset (Manual paper feed)</td><td>MFT</td><td>50</td><td>COPY mode lamp
Manual feed lamp</td></tr>
<tr><td>(*) 2nd print center offset (Main cassette paper feed)</td><td>SIDE2</td><td>50</td><td>PRINT mode lamp
Main cassette lamp</td></tr>
</table>
(*) : Support for the installation models. For non-installation models, skip.
∗ In the 2nd print center offset adjustment, print is made forcibly as 1to2/Short Edge from OC regardless of duplex setting.
∗ When paper is discharged, the shifter is operated.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>12</td><td>Document feed off-center adjustment (ORG.OFF-CENTER)</td><td>
[Function]
Used to adjust document scan off-center adjustment.
The adjustment modes can be selected by pressing [←/→] key. (Adjustment range: 1 – 99, Default:50)
When the adjustment value is increased, the print result is shifted to left.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Platen document scan</td><td>OC</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>(*) SPF document front scan</td><td>SPF</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>(*) RSPF document back scan</td><td>RSPF</td><td>50</td><td>SCAN mode lamp</td></tr>
</table>
(*) : Support for the installation models. For non-installation models, skip.
∗ When paper is discharged, the shifter is operated.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

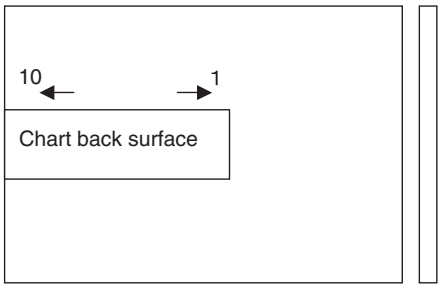
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>50</td><td>18</td><td>Memory reverse position adjustment in duplex copy (DPLX REVERSE)</td><td>
[Function]
When this test command is executed, the current set correction value is displayed.
Enter the correction value and press [START] key to save the entered correction value. (Correction value range; 1 – 99, Default: 50)
For S-D mode front surface print and print of even paged in D-S mode, reverse memory copy operation is performed from the rear edge of documents.
When, therefore, the print position adjustment of output images is required, adjust as follows:
In the reverse memory coping, when the document scan is made in the arrow direction, the output image is printed from the rear edge of scan image,
When, therefore, the print lead edge is shifted, set the reference chart so that the reference position is on the rear edge, and use this test command to adjust the set value so that the print lead edge is matched.
Since printing is made from the image data most lately stored in memory to the lead edge data from the print start position, the image lead edge adjustment is made by changing the end data position stored in memory by the set value of this test command.
Since it is performed by changing the scan end position, the image position adjustment is made by changing the scan end position and the end data stored in memory.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>OC memory reverse output position</td><td>OC</td><td>50</td><td>COPY mode lamp</td></tr>
<tr><td>SPF memory reverse output position *1</td><td>SPF</td><td>50</td><td>PRINT mode lamp</td></tr>
</table>
*1: Only when SPF/RSPF is installed. If installed, skipped.


∗ The initial value of duplex setting is "1to2/Long Edge" for the duplex model, or "2to1" for the simplex model.
∗ When paper is discharged, the shifter is operated.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td></td><td>19</td><td>Duplex copy rear edge void adjustment (DPLX END EDGE)</td><td>
[Function]
Used to adjust the rear edge void amount in duplex copy.
When this test command is executed, the current set value is displayed in 2 digits. (Center value: 50.)
The adjustment modes can be selected by pressing [←/→] key. (Adjustment range; 1 – 99)
Enter the adjustment value and press [START] key to save the set value and make a copy. (The paper information is cleared for every copy.)
When the set value is increased by 1, the void amount is increased by about 0.1mm.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Paper rear edge void amount</td><td>DEN-B</td><td>50</td><td>PRINT mode lamp</td></tr>
<tr><td>Print start position (Duplex back surface)</td><td>RRC-D</td><td>50</td><td>SCAN mode lamp</td></tr>
</table>
∗ The initial value for duplex setting is "1to2/Short Edge" for the OC/SPF setting, or "2to2" for the RSPF setting.
∗ When paper is discharged, the shifter is operated.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>51</td><td>02</td><td>Resist amount adjustment (RESIST ADJ.)</td><td>
[Function]
Used to adjust the contact pressure of the main unit resist roller and the RSPF resist roller onto paper. When this test command is executed, the current set value is displayed.
The adjustment modes can be selected by pressing [←/→] key.
Enter the adjustment value with [10KEY] and press [START] key to save the set value and make a copy.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>Main cassette paper fed</td><td>TRAY1</td><td>50</td><td>COPY mode lamp
Main cassette lamp</td></tr>
<tr><td>(*) 2nd cassette paper feed</td><td>TRAY2</td><td>50</td><td>COPY mode lamp
2nd cassette lamp</td></tr>
<tr><td>Manual paper feed</td><td>MFT</td><td>50</td><td>COPY mode lamp
Manual feed lamp</td></tr>
<tr><td>(*) RSPF document paper feed (Front surface)</td><td>SIDE1</td><td>50</td><td>COPY mode lamp
PRINT mode lamp
SCAN mode lamp</td></tr>
<tr><td>(*) RSPF document paper feed (Back surface)</td><td>SIDE2</td><td>50</td><td>COPY mode lamp
PRINT mode lamp</td></tr>
<tr><td>(*) Duplex back surface</td><td>DUP-2</td><td>50</td><td>PRINT mode lamp
SCAN mode lamp</td></tr>
</table>
(*): Support for the installation models. For non-installation models, skip.
[Operation]
The operation is similar to test command 46-01.
</td></tr>
<tr><td>53</td><td>08</td><td>SPF scan position automatic adjustment (SPF AUTO)</td><td>
[Function]
Place a black chart so that it covers the SPF scan glass and the OC glass together, and close the OC cover.
When this test command is executed, the current adjustment value is displayed as the initial display.
* Default is 1. Adjustment range is 1 – 99. Adjustment unit 1 = about 0.127mm
* If the values are kept as the default values, SPF scan is not performed properly. The front area of the proper scan position may be scanned.
In case of AUTO, press [START] key, and the mirror unit scans from the home position to the SPF scan position with the adjustment value displayed. The SPF glass cover edge position is calculated from the difference between the SPFG glass cover edge and the OC side document glass CCD output level. If the adjustment is normal, the adjusted value is displayed. If abnormal, the error LED lights up with the current set value displayed.
During the error LED is lighted, when [START] key is pressed again, execution is performed again.
<table>
<tr><th>Mode</th><th>Display item</th><th>Default</th><th>LED</th></tr>
<tr><td>SPF scan position auto adjustment</td><td>AUTO</td><td>1</td><td>COPY mode lamp</td></tr>
<tr><td>SPF scan position manual adjustment</td><td>MANU</td><td>1</td><td>PRINT mode lamp</td></tr>
</table>
[Operation]
The operation is similar to test command 46-01. (In MANUAL)
OK/ERR display in AUTO


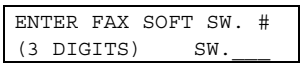
</td></tr>
<tr><td>61</td><td>03</td><td>HSYNC output check (LSU CHK)</td><td>
[Function]
When [ENTER/START] key is pressed, HSYNC is performed and the polygon motor is rotated for 30sec.
At that time, the COPY mode lamp is lighted for 100msec every time when HSYNC is detected.
[Operation]
1) Initial display


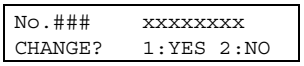
</td></tr>
</table>

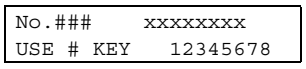
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>63</td><td>01</td><td>Shading check (SHADING CHK)</td><td>
[Function]
Used to display the detection level of white plate for shading.
When [ENTER/START] key is pressed, the mirror base unit moves to the white plate for shading and the copy lamp is lighted.
When the light quantity is stabilized, revision is made for every second, and the level of one pixel at the center of CCD which is not corrected is detected and the value is displayed in decimal values on the LCD. (3 digits)
[Operation]
1) Initial display
<pre>63-01 SHADING CHK
EXECUTING...   000</pre>
</td></tr>
<tr><td></td><td>02</td><td>Black level automatic correction (BLACK LEVEL)</td><td>
[Function]
Used to acquire the black level target value used for the black level adjustment of white balance.
When this test command is executed, the current correction value is displayed in 3 digits of 12bit hexadecimal number.
Place the gray gradation chart (UKOG-0162FCZZ) used as the correction document so that the density 10 (black side) comes on the left side and that the chart is upside down at the center of the plate left center.


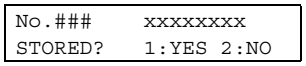
When [ENTER/START] key is pressed, the mirror base unit scans the chart and calculates the correction value.
After completion of correction, the corrected value is displayed on the LCD.
* Default: 0
* If the value is set to the default, operation is made with 0x60.
[Operation]
1) Initial display
<pre>63-02 BLACK LEVEL
              000</pre>
2) [ENTER/START] Correction start
<pre>63-02 BLACK LEVEL
EXECUTING...</pre>

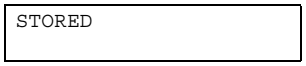
<During canceling - When C/CA is pressed->
After canceling, the machine goes into the sub code entry standby mode.
<pre>THE JOB IS BEING
CANCELED.</pre>
3) After execution
<pre>63-02 BLACK LEVEL
              *** OK</pre>
3) In case of an error
<pre>63-02 BLACK LEVEL
              *** ERR</pre>
</td></tr>
</table>

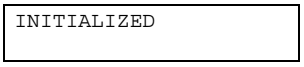
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>64</td><td>01</td><td>Self print (1by2 mode)
(SELF PRT.)</td><td>
[Function]
The status of the optical section is ignored and printing of one page is made. Also when the print command is received from the host, printing is made.
When this test command is executed, warm-up is performed and the ready lamp is lighted. (Since, however, the scanner is disabled, initializing is not made.)
Enter the code number and press [ENTER/START] key to start paper feed from the selected cassette and print in the selected pattern.
<table>
<tr><th>Code number</th><th>Pattern</th><th>Display item</th></tr>
<tr><td>0</td><td>1by2</td><td>1 BY 2</td></tr>
<tr><td>1</td><td>Grid pattern</td><td>CHECK</td></tr>
<tr><td>2</td><td>White paper</td><td>WHITE</td></tr>
<tr><td>3</td><td>Black background</td><td>BLACK</td></tr>
</table>
∗ For 4 – 99, flip.
[Operation]
The operation is similar to test command 21-01.
</td></tr>
<tr><td>66</td><td>01</td><td>FAX soft SW setting</td><td>
[Function]
Use to check the FAX soft SW setting.
Every time when the key is pressed, the bit on the first line is switched 0 and 1.
[Operation]
1) Initial display


∗ [CLEAR] key: Returns to the main-sub code input display.
2) Enter a 3-digit value of soft SW No. (To enter the fourth digit, shift to the left.), and the press [ENTER] key.


"xxxxxxxx" is the set content.
∗ Select 2: Returns to the soft SW No. entry display.
3) Select 1


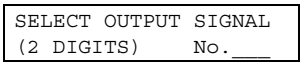
4) Change with 1-8 of [10KEY] and the press [ENTER] key.


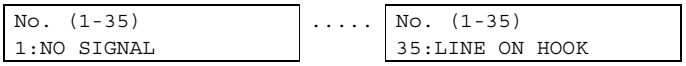
"xxxxxxxx" is the set content.
∗ Select 2: Returns to the soft SW No. entry display.
5) Select 1


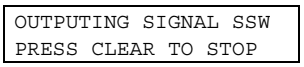
After 2sec, returns to "1) Initial display".
</td></tr>
<tr><td></td><td>02</td><td>FAX soft SW initializing
(excluding the adjustment values)</td><td>
[Function]
Use to initializing FAX soft SW.
[Operation]
1) Initial display


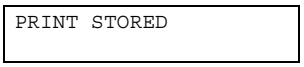
After 2sec, main code and sub code input display.
</td></tr>
</table>

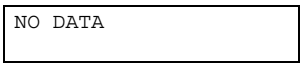
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>66</td><td>03</td><td>FAX PWB memory check</td><td>
[Function]
Use to check the FAX PWB memory.
[Operation]
1) Initial display
<pre>SELECT CHECK MEMORY
PRESS ←, →</pre>
2) [←/→] or after 2sec
Every time when [→] key is pressed, the second line is changed in the sequence of No. 1 → 2 → 3 → 1.
When [←] key is pressed, the sequence is reversed.
<pre>SELECT MEMORY (1-3)
1:DRAM</pre>
<pre>SELECT MEMORY (1-3)
2:SRAM</pre>
<pre>SELECT MEMORY (1-3)
3:FLASH</pre>
* [CLEAR] key: Returns to the main-sub code input display.
3) [ENTER] key
<pre>CHECKING MEMORY</pre>
4) After completion of check
• When the result is OK
<pre>MEMORY CHECK RESULT
OK</pre>
• In case of address bus check error
<pre>MEMORY CHECK RESULT
XXXXXXXX A-BUS NG</pre>
• In case of data bus check error
<pre>MEMORY CHECK RESULT
XXXXXXXX D-BUS NG</pre>
• In case of sum check error
<pre>MEMORY CHECK RESULT
XXXXXXXX SUM NG</pre>
• In case of data check error
<pre>MEMORY CHECK RESULT
XXXXXXXX DATA NG</pre>
• In case of erase check error
<pre>MEMORY CHECK RESULT
XXXXXXXX ERASE NG</pre>
* [CLEAR] key: Returns to "1) Initial display".
</td></tr>
<tr><td></td><td>04</td><td>Signal send mode (Max. value)</td><td>
[Function]
Use to set the signal send mode (Max. value).
Facsimile test command design specifications.
<table>
<tr><td>1</td><td>NO SIGNAL</td><td>13</td><td>7200bps(V34)</td><td>25</td><td>2400bps(V27ter)</td></tr>
<tr><td>2</td><td>33600bps(V34)</td><td>14</td><td>4800bps(V34)</td><td>26</td><td>300bps(FLAG)</td></tr>
<tr><td>3</td><td>31200bps(V34)</td><td>15</td><td>2400bps(V34)</td><td>27</td><td>2100Hz(CED)</td></tr>
<tr><td>4</td><td>28800bps(V34)</td><td>16</td><td>14400bps(V33)</td><td>28</td><td>1100Hz(CNG)</td></tr>
<tr><td>5</td><td>26400bps(V34)</td><td>17</td><td>12000bps(V33)</td><td>29</td><td>300bps(V21)</td></tr>
<tr><td>6</td><td>24000bps(V34)</td><td>18</td><td>14400bps(V17)</td><td>30</td><td>2100Hz(ANSam)</td></tr>
<tr><td>7</td><td>21600bps(V34)</td><td>19</td><td>12000bps(V17)</td><td>31</td><td>DUMMY RING</td></tr>
<tr><td>8</td><td>19200bps(V34)</td><td>20</td><td>9600bps(V17)</td><td>32</td><td>NO VOICE ANSWER</td></tr>
<tr><td>9</td><td>16800bps(V34)</td><td>21</td><td>7200bps(V17)</td><td>33</td><td>NO RING BACK TONE</td></tr>
<tr><td>10</td><td>14400bps(V34)</td><td>22</td><td>9600bps(V29)</td><td>34</td><td>LINE OFF HOOK</td></tr>
<tr><td>11</td><td>12000bps(V34)</td><td>23</td><td>7200bps(V29)</td><td>35</td><td>LINE ON HOOK</td></tr>
<tr><td>12</td><td>9600bps(V34)</td><td>24</td><td>4800bps(V27ter)</td><td></td><td></td></tr>
</table>
[Operation]
1) Initial display
<pre>SELECT OUTPUT SIGNAL
(2 DIGITS)   No.___</pre>
2) 2-digit (1-35) with [10KEY] / [←/→] / 2sec after
Pressing [→] key or [←] key reverses the sequence.
<pre>No. (1-35)
1:NO SIGNAL</pre>
.....
<pre>No. (1-35)
35:LINE ON HOOK</pre>
* [CLEAR] key: Returns to the main-sub code input display.
3) [ENTER] key
Send after setting
<pre>OUTPUTING SIGNAL MAX
PRESS CLEAR TO STOP</pre>
* [CLEAR] key: Returns to "1) Initial display".
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>66</td><td>05</td><td>Signal send mode (Soft SW set value)</td><td>
[Function]
Use to set the signal send mode (Soft SW set value).
Facsimile test command design specifications.
<table>
<tr><td>1</td><td>NO SIGNAL</td><td>13</td><td>7200bps(V34)</td><td>25</td><td>2400bps(V27ter)</td></tr>
<tr><td>2</td><td>33600bps(V34)</td><td>14</td><td>4800bps(V34)</td><td>26</td><td>300bps(FLAG)</td></tr>
<tr><td>3</td><td>31200bps(V34)</td><td>15</td><td>2400bps(V34)</td><td>27</td><td>2100Hz(CED)</td></tr>
<tr><td>4</td><td>28800bps(V34)</td><td>16</td><td>14400bps(V33)</td><td>28</td><td>1100Hz(CNG)</td></tr>
<tr><td>5</td><td>26400bps(V34)</td><td>17</td><td>12000bps(V33)</td><td>29</td><td>300bps(V21)</td></tr>
<tr><td>6</td><td>24000bps(V34)</td><td>18</td><td>14400bps(V17)</td><td>30</td><td>2100Hz(ANSam)</td></tr>
<tr><td>7</td><td>21600bps(V34)</td><td>19</td><td>12000bps(V17)</td><td>31</td><td>DUMMY RING</td></tr>
<tr><td>8</td><td>19200bps(V34)</td><td>20</td><td>9600bps(V17)</td><td>32</td><td>NO VOICE ANSWER</td></tr>
<tr><td>9</td><td>16800bps(V34)</td><td>21</td><td>7200bps(V17)</td><td>33</td><td>NO RING BACK TONE</td></tr>
<tr><td>10</td><td>14400bps(V34)</td><td>22</td><td>9600bps(V29)</td><td>34</td><td>LINE OFF HOOK</td></tr>
<tr><td>11</td><td>12000bps(V34)</td><td>23</td><td>7200bps(V29)</td><td>35</td><td>LINE ON HOOK</td></tr>
<tr><td>12</td><td>9600bps(V34)</td><td>24</td><td>4800bps(V27ter)</td><td></td><td></td></tr>
</table>
[Operation]
1) Initial display


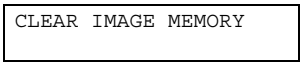
2) 2-digit (1-35) with [10KEY] / [←/→] / 2sec after
Pressing [→] key or [←] key reverses the sequence.


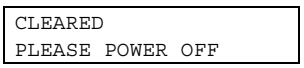
* [CLEAR] key: Returns to the main-sub code input display.
3) [ENTER] key
Send after setting


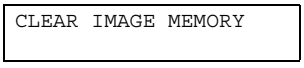
* [CLEAR] key: Returns to "1) Initial display".
</td></tr>
<tr><td></td><td>07</td><td>Image memory content print</td><td>
[Function]
Use to print the image memory content.
[Operation]
• When print is allowed


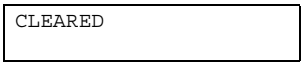
After completion of printing, main code and sub code input display.
• When there is no print data


After 2 sec, FAX control is terminated.
• When print is inhibited

After 2 sec, main code and sub code input display.
</td></tr>
<tr><td></td><td>10</td><td>Image memory content clear</td><td>
[Function]
Use to clear the image memory content.
[Operation]
• When there are some print data


After completion of memory clear, the buzzer sounds.


Remains unchanged until the power is turned off.
• When there are no print data


After completion of memory clear


After 2sec, main code and sub code input display.
</td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation

66	11	300bps signal send (Max. value)	**[Function]**
			Use to set the 300bps signal send (Max. value).
			1: NO SIGNAL
			2: 11111
			3: 11110
			4: 00000
			5: 010101
			6: 00001
			[Operation]
			1) Initial display
			`SELECT SIGNAL`
			`PRESS ←, →`
			2) [←/→] or after 2sec
			Every time when [→] key is pressed, the second line is changed in the sequence of No. 1 → 2 → 3 → 4 → 5 → 6 → 1.
			When [←] key is pressed, the sequence is reversed.
			`SELECT SIGNAL (1-6)` `1:NO SIGNAL` ..... `SELECT SIGNAL (1-6)` `6:00001`
			* [CLEAR] key: Returns to the main-sub code input display.
			3) [ENTER] key
			`OUTPUTING SIGNAL MAX`
			`PRESS CLEAR TO STOP`
			* [CLEAR] key: Returns to "1) Initial display".

	12	300bps signal send (Soft SW set value)	**[Function]**
			Use to set the 300bps signal send (Soft SW set value).
			1: NO SIGNAL
			2: 11111
			3: 11110
			4: 00000
			5: 010101
			6: 00001
			[Operation]
			1) Initial display
			`SELECT SIGNAL`
			`PRESS ←, →`
			2) [←/→] or after 2sec
			Every time when [→] key is pressed, the second line is changed in the sequence of No. 1 → 2 → 3 → 4 → 5 → 6 → 1.
			When [←] key is pressed, the sequence is reversed.
			`SELECT SIGNAL (1-6)` `1:NO SIGNAL` ..... `SELECT SIGNAL (1-6)` `6:00001`
			* [CLEAR] key: Returns to the main-sub code input display.
			3) [ENTER] key
			`OUTPUTING SIGNAL SSW`
			`PRESS CLEAR TO STOP`
			* [CLEAR] key: Returns to "1) Initial display".

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>66</td><td>13</td><td>Dial test</td><td>
[Function]
Use to the dial test.
[Operation]
■ Dial test (PULSE)
1) Initial display
<pre>SELECT SIGNAL
1:PULSE   2:DTMF</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
2) Select 1
<pre>INPUT MAKE TIME
(0-15)   __</pre>
3) Enter the make time in 2 digits.
<pre>INPUT DIAL #
XXXX</pre>
XXXX: Default
∗ After deleting with [CLEAR] key, input can be made.
4) [ENTER] key
<pre>SEND yyPPS xxms
1:YES 2:NO</pre>
"yy" is the selected pulse 10 or 20.
"xx" is the input value.
∗ Select 2: Returns to “2)” display.
5) Select 1
Switched to 10/20PPS set with pulse selection inside.
6) After setting
<pre>SENDING yyPPS xxms</pre>
7) After completion of sending
<pre>TERMINATE ?
1:YES 2:NO</pre>
∗ Select 2: Returns to “4)” display.
8) Select 1
<pre>TERMINATED</pre>
After 2sec, returns to "1) Initial display".
■ Dial test (DTMF)
1) Initial display
<pre>SELECT SIGNAL
1:PULSE   2:DTMF</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
2) Select 2
<pre>SELECT HIGH LEVEL
1:DEFAULT 2:SOFT SW.</pre>
↓ Select 2
↓
<pre>INPUT VALUE
(0-15)   __</pre>
3) Select 1 ↓
<pre>SELECT LOW LEVEL
1:DEFAULT 2:SOFT SW.</pre>
↓ Select 2
↓
<pre>INPUT VALUE
(0-15)   __</pre>
4) Select 1 ↓
<pre>INPUT DIAL #
XXXX</pre>
XXXX: Default
∗ After deleting with [CLEAR] key, input can be made.
4) [ENTER] key
<pre>H:xx   L:yy
1:YES 2:NO</pre>
"xx" indicates HI, and "yy" indicates Low Soft SW.
∗ Select 2: Returns to “4)” display.
5) Select 1
HI/LO is selected with the signal level inside.
6) After setting the signal send level
<pre>SENDING DTMF</pre>
7) After completion of sending
<pre>TERMINATE ?
1:YES 2:NO</pre>
∗ Select 2: Returns to “4)” display.
8) Select 1
<pre>TERMINATED</pre>
After 2sec, returns to "1) Initial display".
</td></tr>
<tr><td></td><td>17</td><td>DTMF signal send (Max. value)</td><td>
[Function]
Use to set the DTMF signal send (Max. value).
[Operation]
1) Initial display
<pre>INPUT DIAL #</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
2) [10KEY] input
The content selected with signal send level selection is set inside.
3) Communication is started after setting the signal send level.
<pre>SENDING SIGNAL MAX
PRESS CLEAR TO STOP</pre>
∗ [CLEAR] key: Returns to "1) Initial display".
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>66</td><td>18</td><td>DTMF signal send (Soft SW set value)</td><td>
[Function]
Use to set the DTMF signal send (Soft SW set value).
[Operation]
1) Initial display
<pre>INPUT DIAL #</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
2) [10KEY] input
The content selected with signal send level selection is set inside.
3) Communication is started after setting the signal send level.
<pre>SENDING SIGNAL SSW
PRESS CLEAR TO STOP</pre>
∗ [CLEAR] key: Returns to "1) Initial display".
</td></tr>
<tr><td></td><td>21</td><td>FAX information print</td><td>
[Function]
Use to print the FAX information.
[Operation]
1) Initial display
<pre>SELECT REPORT (1-3)
PRESS ←, →</pre>
2) [←/→] or after 2sec
Every time when [→] key is pressed, the second line is changed in the sequence of 1 → 2 → 3 → 1.
When [←] key is pressed, the sequence is reversed.
<pre>SELECT REPORT (1-3)
1:USER SW. LIST</pre>
<pre>SELECT REPORT (1-3)
2:SOFT SW. LIST</pre>
<pre>SELECT REPORT (1-3)
3:PROTOCOL</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
3) [ENTER] key
• When print is allowed
<pre>PRINT STORED</pre>
After completion of printing, main code and sub code input display.
• When print is inhibited
<pre>CAN NOT PRINT</pre>
After 2sec, FAX control is terminated.
</td></tr>
<tr><td></td><td>24</td><td>FAST SRAM clear</td><td>
[Function]
Use to clear the FAST SRAM.
[Operation]
1) Initial display
<pre>CLEAR FAST SRAM</pre>
2) After completion of clearing
<pre>CLEARED</pre>
After 2sec, main code and sub code input display.
</td></tr>
<tr><td></td><td>30</td><td>TEL/LIU status change check</td><td>
[Function]
Use to check the TEL/LIU status change.
[Operation]
1) Initial display
<pre>HS2 :xxx HS1 :xxx
RHS :xxx EXHS:xxx</pre>
↑
The display is switched every 2sec.
↓
<pre>CHECKING
PRESS CLEAR TO STOP</pre>
∗ [CLEAR] key: Returns to the main-sub code input display.
</td></tr>
</table>

Main code	Sub code	Contents	Details of function/operation

66	32	Receive data check	**[Function]**
			Use to check the receive data.
			[Operation]
			1) Initial display
			`RECEIVING`
			2) After completion of reception
			`RESULT`
			`xx`
			"xx" is "OK" or "NG" depending on the check result.
			* [CLEAR] key: Returns to the main-sub code input display.

	33	Signal detection check	**[Function]**
			Use to check the signal detection.
			[Operation]
			1) Initial display
			`CHECKING NONE`
			`PRESS CLEAR TO STOP`
			When a signal is detected, the display is changed from NONE to the following.
			CI/CNG/CED/BT/DT/Flag/SDT/DTMF
			* [CLEAR] key: Returns to the main-sub code input display.

	34	Communication time measurement	**[Function]**
			Use to measurement the communication time.
			[Operation]
			1) Initial display
			`COMM. TIME`
			`xx:xx:xx:xxx msec`
			"xx:xx:xx:xxx" indicates o'clock, minute, second, millisecond.
			* [CLEAR] key: Returns to the main-sub code input display.

	37	Speaker sound volume setting	**[Function]**
			Use to set the speaker sound volume.
			1: NO SOUND
			2: LOW
			3: MID
			4: HIGH
			[Operation]
			1) Initial display
			`SELECT SPEEKER VOL.`
			`PRESS ←, →`
			2) [←/→] or after 2sec
			Every time when [→] key is pressed, the second line is changed in the sequence of 1 → 2 → 3 → 4 → 1.
			When [←] key is pressed, the sequence is reversed.
			`SELECT (1-4)` `1:NO SOUND` `SELECT (1-4)` `2:LOW` .....
			* [CLEAR] key: Returns to the main-sub code input display.
			3) [ENTER] key
			`STORED`
			`xxx`
			xxx: Set content
			After 2sec, main code and sub code input display.

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of function/operation</th></tr>
<tr><td>66</td><td>38</td><td>Time setting/check</td><td>
[Function]
Use to check the time setting.
[Operation]
1) Initial display
<pre>SELECT TO SET
1:DATE   2:TIME</pre>
* [CLEAR] key: Returns to the main-sub code input display.
2) Select 1
<pre>xxxx.xx.xx(xxx)
CHANGE?   1:YES 2:NO</pre>
"xxxx.xx.xx(xxx)" is the current value. (No revision of display)
3) Select 1
<pre>INPUT YEAR
(4 DIGITS)____.__.__</pre>
* Select 2: Returns to "1) Initial display".
4) Enter the year in 4 digits.
<pre>INPUT MONTH
(1-12)   1998.__.__</pre>
5) Enter the month in 2 digits.
<pre>INPUT DAY
(1-31)   1998.01.__</pre>
6) Enter the day in 2 digits.
<pre>xxxx.xx.xx(xxx)
STORED?   1:YES 2:NO</pre>
"xxxx.xx.xx(xxx) is the entered value.
* Select 2: Returns to "1) Initial display".
7) Select 1
<pre>STORED</pre>
After 2sec, returns to "1) Initial display".
2) Select 2
<pre>xx:xx
CHANGE?   1:YES 2:NO</pre>
"xx:xx" is the current value.
3) Select 1
<pre>INPUT HOUR
(0-24)   __:__</pre>
* Select 2: Returns to "1) Initial display".
4) Enter o'clock in 2 digits.
<pre>INPUT MINUTE
(00-59)   01:__</pre>
5) Enter minute in 2 digits.
<pre>xx:xx
STORED?   1:YES 2:NO</pre>
"xx:xx" is the current value.
* Select 2: Returns to "1) Initial display".
6) Select 1
<pre>STORED</pre>
After 2sec, returns to "1) Initial display".
</td></tr>
<tr><td></td><td>41</td><td>CI signal check</td><td>
[Function]
Use to check the CI signal.
When CI signal is detected, OFF → ON.
[Operation]
1) Initial display
<pre>CHECKING   CI:OFF
PRESS CLEAR TO STOP</pre>
* [CLEAR] key: Returns to the main-sub code input display.
</td></tr>
<tr><td></td><td>70</td><td>Print hold passcode check</td><td>
[Function]
Use to check print hold passcode.
* This function is used when the user forgets his/her passcode.
[Operation]
1) Initial display
<pre>PRINT HOLD PASSCODE
XXXX</pre>
XXXX: Print hold passcode.
When no passcode is registered, "PASSCODE NOT STORED" is displayed.
* [CLEAR] key: Returns to the main-sub code input display.
</td></tr>
</table>

5. FAX soft switch setting change quick reference table

Large item	Middle item	Switch content	Key operator	Soft SW No.	Usage
Dialing	Remote machine call disable	Pause time	None	SW 5-5 – 8	When dialing disable/when error dialing
		Dial call signal	User program	SW 48-1, 2	When dialing disable
		DTMF-related item	None	SW 51-1 – 5	When dialing disable in PBX (private branch exchange/Fax service, etc.)
			None	SW 53-5 – 8	When dialing disable in PBX (private branch exchange/Fax service, etc.)
			None	SW 39-4 – 8	When dialing disable in PBX (private branch exchange/Fax service, etc.)
		Pulse (10PPS)	None	SW 67-1 – 4	When pulse dialing disable
	Signal detection	Busy tone detection	None	SW 7-3	When busy tone detection disable
		Busy tone detection	None	SW 51-7, 8	When busy tone error is detected
		Dial tone detection	None	SW 7-2	
Redial	In case of an error	Resend interval	User program	SW 4-1 – 4	When send errors occur frequently
	In case of an error	Number of times of resend	User program	SW 40-1 – 8	
	When busy	Resend interval	User program	SW 4-5 – 8	Whey busy occurs frequently
	When busy	Number of times of resend	User program	SW 41-1 – 8	
Arrival (Call-in)	When CI detection disable	CI detection	None	SW 12-6, 7	No call-in
		CI signal OFF detection time	None	SW 55-1 – 7	No call-in
External telephone	Setting of an external telephone connected	Yes/No	None	SW 47-2	When an external telephone is connected
	Remote switch number	Entry of a 2-digit number	User program	SW 2-5 – 8	When remote switch is erroneously detected
	Remote switch setting	Yes/No	User program	SW 8-5	When remote switch is erroneously detected
Communication	General	Send level	None	SW 15-4 – 8	When the remote machine cannot receive signals in a proper level.
		JBIG mode	None	SW 17-4, 8	When an error occurs in the JBIG mode
	SG3	V34 mode function setup	None	SW 43-1	When SG3 communication error occurs frequently
		V34 symbol rate	None	SW43-4 – 6	When SG3 communication error occurs frequently
Transmission	G3/SG3	DIS reception check	None	SW 6-8	When an error occurs in phase B
		Line equalizer	None	SW 59-5 – 8	Setting is made referring to the distance from the station when a communication trouble occurs.
	SG3	V34 send speed	None	SW 44-1 – 4	When an error occurs in the SG3 communication.
		Manual send V34	None	SW 42-8	When an error occurs in the SG3 communication in FAX service, etc.
	G3	Modem send speed	None	SW 16-1 – 4	To specified/unspecified destination
		RTN reception error	None	SW 52-5	When judged as “OK” though RTN is received
Reception	G3/SG3	CSI transmission	None	SW 6-3	
		Maximum reception length	None	SW 7-6	When a document of 1m or longer is received
	SG3	V34 reception speed	None	SW 44-5 – 8	When fall-down occurs frequently in the SG3 communication
	G3	Countermeasure against echo in reception	None	SW 6-4	When an error occurs in phase B in reception
		Modem speed in reception	None	SW 16-5, 6	When the line quality is poor and a fall-back or an error occurs
		EYE-Q check only	None	SW 72-1	Change in the detection method of training error
Reception print	Paper selection	Automatic reduction print	User program	SW 24-8	When reduction print is not made
	Index	Index print setup	User program	SW 32-6	When an index is attached to the reception data

6. Soft switch list

* When outside the set range, the default value is automatically set.
* Never change the soft switch setup which are inhibited to use.

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value		Remark
SW1	1	Image quality priority selection	Bit No. 1 2 Normal 0 0 Fine 0 1 Super fine 1 0	Normal	0	Refer to User program "RESO.PRIORITY". When a value outside the set range is set, the initial value is set.
	2				0	
	3	Inhibited to use			0	
	4	Auto/Manual default setup	1: Manual reception 0: Automatic reception	Automatic reception	0	Manual reception can be set only when external telephone is connected.
	5	Send request protection	1: Not protected 0: Protected	Protected	0	Refer to User program "SECURITY SELECTION".
	6	Inhibited to use			0	
	7				0	
	8				0	
SW2	1	Inhibited to use			0	
	2				0	
	3				0	
	4				0	
	5	Remote selection number setup	Binary input Bit No. 5 6 7 8 Set range 0 to 9	5	0	Refer to User program "REMOTE RECEPTION #". When a value outside the set range is set, the initial value is set.
	6				1	
	7				0	
	8				1	
SW3	1	Density default setup	Bit No. 1 2 3 4 5 Light 1 0 0 0 0 Medium 0 0 1 0 0 Dark 0 0 0 0 1	Medium	0	When a value outside the set range is set, the initial value is set.
	2				0	
	3				1	
	4				0	
	5				0	
	6	Inhibited to use			0	
	7	Size specification	Bit No. 7 8 Centimeter size 0 0 Inch size 1 0 Conforms to the machine information. 0 1 Conforms to the machine information. 1 1	Conforms to the machine information.	0	When set to conformity to the machine information, if machine information is uncertain, set to centimeter size.
	8				1	
SW4	1	Recall interval in communication error	Binary input Bit No. 1 2 3 4 Set range 1 to 15min 0: Recall immediately after cutting the line	1min	0	Refer to User program "RECALL INTERVAL (LINE ERROR)". When a value outside the set range is set, the initial value is set.
	2				0	
	3				0	
	4				1	
	5	Recall interval in busy	Binary input Bit No. 5 6 7 8 Set range 1 to 15min	3min	0	Refer to User program "RECALL INTERVAL (BUSY)". When a value outside the set range is set, the initial value is set.
	6				0	
	7				1	
	8				1	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW5	1	Inhibited to use				0	
	2					0	
	3	G3 send data accumulation wait time	Bit No.	3 4	6sec	0	
			6sec	0 0			
			5sec	0 1			
	4		4sec	1 0		0	
			3sec	1 1			
	5	Pause time setup	Binary input Bit No. 5 6 7 8 Set range 1 to 15sec		2sec	0	When a value outside the set range is set, the initial value is set.
	6					0	
	7					1	
	8					0	
SW6	1	ECM	1: Yes	0: No	Yes	1	
	2	CED signal send	1: Yes	0: No	Yes	1	
	3	CSI transmission	1: Yes	0: No	Yes	1	
	4	DIS reception confirmation in G3 send	1: 2 times	0: Once in NFS reception, 2 time in DIS reception	Once in NFS reception, 2 time in DIS reception	0	
	5	Inhibited to use				0	
	6	EOL detection timer	1: 25sec	0: 13sec	13sec	0	
	7	Countermeasure for echo in reception (CED tone send interval)	1: 500ms	0: 75ms	75ms	0	
	8	Countermeasure for echo in transmission (After reception of DIS, hold time up to signal send is set.)	1: 500ms	0: 200ms	200ms	0	
SW7	1	Inhibited to use				0	
	2	Dial tone detection	1: Yes	0: No	No	0	
	3	Busy tone detection	1: Yes	0: No	Yes	1	
	4	Dial tone monitoring time	1: 10sec	0: 5sec	5sec	0	
	5	Inhibited to use				0	
	6	Max. length of reception	1: No limit	0: 1.5m	1.5m	0	
	7	Destination display time when one-touch key is pressed	Bit No.	7 8	2sec	0	When a value outside the set range is set, the initial value is set.
			2sec	0 0			
			4sec	0 1			
	8		6sec	1 0		0	
				1 1			
SW8	1	Memory transmission/ direct transmission default setup	1: Direct transmission	0: Memory transmission	Memory transmission	0	
	2	Proxy reception	1: Yes	0: No	Yes	1	
	3	Inhibited to use				0	
	4	Quick online send	1: Yes	0: No	Yes	1	
	5	Remote select function	1: Yes	0: No	Yes	1	Refer to User program “REMOTE RECEPTION SELECT”.
	6	Number of times of CNG detection	Binary input Bit No. 6 7 8 Set range 1 to 4 times		3 times	0	When a value outside the set range is set, the initial value is set.
	7					1	
	8					1	
SW9	1	Print of total communication time and total pages	1: Yes	0: No	Yes	1	
	2	Inhibited to use				0	
	3	Ringing volume pattern number	Binary input Bit No. 3 4 5 6 7 8 Set range Pattern No. 1 to 35		7	0	When a value outside the set range is set, the initial value is set.
	4					0	
	5					0	
	6					1	
	7					1	
	8					1	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 10	1	Measurement of communication time (image)	1: Yes	0: No	Yes	1	
	2	Sender's telephone number registration	1: Inhibit	0: Allow	Allow	0	
	3	Inhibited to use				0	
	4					0	
	5					0	
	6	ECM byte/frame	1: 64 [bytes/frame]	0: 256 [bytes/frame]	256 [bytes/ frame]	0	
	7	Inhibited to use				0	
	8					0	
SW 11	1	Scanner resource holding time out in direct send	Binary input		26sec	0	
	2		Bit No.	1 2 3 4 5 6 7 8		0	
	3		Set range	1 to 255sec		0	
	4			0: No time out		1	
	5					1	
	6					0	
	7					1	
	8					0	
SW 12	1	Call time setup in automatic transmission (T0 timer setup)	Binary input		45sec	0	When a value outside the set range is set, the initial value is set.
	2		Bit No.	1 2 3 4		0	
	3		Set range	30 to 75sec		1	
	4			5sec unit		1	
				N x 5 + 30sec			
	5	Inhibited to use				0	
	6	CI detection	Bit No.	6 7	4 sine wave	0	When a value outside the set range is set, the initial value is set.
	7		4 sine wave	0 0		0	
			3 sine wave	1 0			
			2 sine wave	0 1			
				1 1			
	8	Inhibited to use				0	
SW 13	1	Inhibited to use				0	
	2					0	
	3	Ringing volume	Bit No.	3 4	Medium	1	Refer to User program "RINGER VOLUME".
	4		Silent	0 0		0	
			Small	0 1			
			Medium	1 0			
			Large	1 1			
	5	Speaker volume in DTMF send	Bit No.	5 6	Medium	1	
	6		Not used	0 0		0	
			Small	0 1			
			Medium	1 0			
			Large	1 1			
	7	Inhibited to use				1	
	8					1	
SW 14	1	Inhibited to use				0	
	2					1	
	3					0	
	4					1	
	5					0	
	6					0	
	7					0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW15	1	Busy tone detection time (Lower limit)	1: 350ms	0: 250ms	250ms	0	
	2	Busy tone detection time (Upper limit)	1: 650ms	0: 750ms	750ms	0	
	3	Busy tone detection time (Lower limit 2)	1: 150ms	0: Follows SW15-1.	Follows SW15-1.	0	
	4	Signal send level	Binary input		–12dBm	0	When a value outside the set range is set, the initial value is set.
	5		Bit No.	4 5 6 7 8		1	
	6		Set range	0 (0dBm) to 26 (–26dBm)		1	
	7					0	
	8					0	
SW16	1	Modem speed (V.33 mode or less)	Bit No.	1 2 3 4	V.17 14.4kbps	1	
			V.27 2400bps	0 0 0 0			
			V.29 9600bps	0 0 0 1			
	2		V.27 4800bps	0 0 1 0		0	
			V.29 7200bps	0 0 1 1			
			V.33 14.4kbps	0 1 0 0			
	3		V.33 12.0kbps	0 1 1 0		0	
			V.17 9600bps	1 0 0 1			
			V.17 12.0kbps	1 0 1 0			
	4		V.17 7200bps	1 0 1 1		0	
			V.17 14.4kbps	Others			
	5	Modem speed in reception fixed	Bit No.	5 6	No fixing	0	
			No fixing	0 0			
			V.29-9600BPS	0 1			
	6		V.27ter-4800BPS	1 0		0	
			V.17-14400BPS	1 1			
	7	Inhibited to use				0	
	8					0	
SW17	1	Inhibited to use				0	
	2	MH fixed (Except for SG3)	1: Yes	0: No (depending on the other party's machine)	No	0	
	3	ECM MMR (Except for SG3)	1: Yes	0: No	Yes	1	
	4	ECM JBIG (Except for SG3)	1: Yes	0: No	Yes	1	
	5	Inhibited to use				0	
	6	MH fixed (in SG3)	1: Yes	0: No (depending on the other party's machine)	No	0	
	7	ECM MMR (in SG3)	1: Yes	0: No	Yes	1	
	8	ECM JBIG (in SG3)	1: Yes	0: No	Yes	1	
SW18	1	Inhibited to use				1	
	2					1	
	3					0	
	4					1	
	5					0	
	6					0	
	7					0	
	8					0	
SW19	1	Inhibited to use				0	
	2					1	
	3					0	
	4					0	
	5					0	
	6	Recording table automatic print	1: Yes	0: No	No	0	Refer to User program "AUTO LISTING".
	7	Inhibited to use				0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions			Initial value		Remark
SW 20	1	Line sound monitor range		Bit No.	1 2	OFF	0	When a value outside the set range is set, the initial value is set.
				OFF	0 0			
				Up to NSF signal send/ receive	0 1			
	2			All	1 0		0	
					1 1			
	3	Line monitor display	1: Yes		0: No	No	0	
	4	Inhibited to use					0	
	5	Receivable memory capacity	1: 64Kbyte		0: 128Kbyte	128Kbyte	0	
	6	Inhibited to use					0	
	7						0	
	8						0	
SW 21	1	Interval between completion of communication and the next call	Binary input Bit No. 1 2 3 4 5 6 7 8 Set range 0 to 255sec			1sec	0	
	2						0	
	3						0	
	4						0	
	5						0	
	6						0	
	7						0	
	8						1	
SW 22	1	Inhibited to use					0	
	2						0	
	3						0	
	4						0	
	5						0	
	6						0	
	7						0	
	8						0	
SW 23	1	Inhibited to use					0	
	2						0	
	3						0	
	4						0	
	5						0	
	6						0	
	7						0	
	8						0	
SW 24	1	Inhibited to use					0	
	2						0	
	3	Specified number reception (ANTI JUNK FAX)		Bit No.	3 4	Not set.	0	Refer to Main menu “ANTI JUNK FAX”.
				Not set.	0 0			
	4			Receive inhibit	0 1		0	When a value outside the set range is set, the initial value is set.
	5	Inhibited to use					0	
	6	Document output setup in reception	1: Collective output after completion of reception		0: Output after reception of every page	Output after reception of every page	0	
	7	Inhibited to use					0	
	8	Automatic reduction print	1: Allow		0: Inhibit	Allow	1	Refer to User program “AUTO RCV REDUCE”.
SW 25	1	Automatic reduction rate setup	Binary input Bit No. 1 2 3 4 Set range 0 to 15%			10%	1	
	2						0	
	3						1	
	4						0	
	5	Transmission end sound tone		Bit No.	5 6	1000Hz	0	When a value outside the set range is set, the initial value is set.
				550Hz	0 0			
	6			1000Hz	0 1		1	
				1700Hz	1 0			
	7	Reception end sound tone		Bit No.	7 8	1000Hz	0	When a value outside the set range is set, the initial value is set.
				550Hz	0 0			
	8			1000Hz	0 1		1	
				1700Hz	1 0			

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 26	1	Read completion sound	1: Mute	0: 1sec	1sec	0	
	2	Inhibited to use				0	
	3	Speaker volume setup	Bit No.	3 4	Small	0	Refer to User program "BEEPER VOLUME (send completion sound / receive completion sound / scan completion sound / alarm sound)"
			Silent	0 0			
			Small	0 1			
	4		Medium	1 0		1	
			Large	1 1			
	5	Inhibited to use				0	
	6					0	
	7					0	
	8					0	
SW 27	1	Inhibited to use				0	
	2					1	
	3					1	
	4					1	
	5					1	
	6					0	
	7	Recording paper tray selection	Bit No.	7 8	AUTO	0	Refer to User program "TRAY SELECTION". When a value outside the set range is set, the initial value is set.
			AUTO	0 0			
			TRAY1	0 1			
	8		TRAY2	1 0		0	
				1 1			
SW 28	1	Inhibited to use				1	
	2					1	
	3					0	
	4					1	
	5					0	
	6					0	
	7					0	
	8					0	
SW 29	1	Number of auto switch calls of manual reception → auto reception	Binary input Bit No. 1 2 3 4 Set range 0 to 9 Not switched when 0.		0 time	0	Refer to User program "# OF RINGS MANUAL RX". When a value outside the set range is set, the initial value is set.
	2					0	
	3					0	
	4					0	
	5	Setup of number of times of call rings	Binary input Bit No. 5 6 7 8 Set range 0 to 9 times		2 times	0	Refer to User program "# OF RINGS AUTO RX". When a value outside the set range is set, the initial value is set.
	6					0	
	7					1	
	8					0	
SW 30	1	Report output when canceling	1: Output	0: Not output	Not output	0	
	2	Inhibited to use				0	
	3					1	
	4					0	
	5	Default data, sender print	1: ON	0: OFF	ON	1	
	6	Inhibited to use				0	
	7	Date/sender print position setup	1: Inside of document	0: Outside of document	Outside of document	0	
	8	Inhibited to use				1	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 31	1	Report output (in transmission)	Bit No.	1 2	Only when transmission is failed.	1	Refer to User program “PRINT SELECTION”. When a value outside the set range is set, the initial value is set.
			Print inhibited	0 0			
			All print	0 1			
	2		Only when transmission is failed.	1 0		0	
				1 1			
	3	Report output (In broadcast and sequential send request)	Bit No.	3 4	All print	0	Refer to User program “PRINT SELECTION”. When a value outside the set range is set, the initial value is set.
			Print inhibited	0 0			
			All print	0 1			
	4		Only the address to which transmission is failed	1 0		1	
				1 1			
	5	Report output (in reception)	Bit No.	5 6	Print inhibited	0	Refer to User program “PRINT SELECTION”. When a value outside the set range is set, the initial value is set.
			Print inhibited	0 0			
			All print	0 1			
	6		Only in error	1 0		0	
				1 1			
	7	Contents of send document are printed in memory send	Bit No.	7 8	Only the address to which transmission is failed	1	Refer to User program “PRINT SELECTION”. When a value outside the set range is set, the initial value is set.
			Print inhibited	0 0			
			All print	0 1			
	8		Only the address to which transmission is failed	1 0		0	
				1 1			
SW 32	1	Distinctive ringing	Bit No.	1 2 3 4	OFF	0	Refer to User program “DISTINCTIVE RING”. When a value outside the set range is set, the initial value is set.
			OFF	0 0 0 0			
	2		Standard/ON	0 0 0 1		0	
			Pattern1	1 0 0 0			
	3		Pattern2	0 1 0 0		0	
			Pattern3	1 1 0 0			
	4		Pattern4	0 0 1 0		0	
			Pattern5	1 0 1 0			
	5	Inhibited to use				0	
	6	Index print setup	1: Print	0: Not print	Not print	0	Refer to User program “INDEX PRINT”.
	7	Inhibited to use				0	
	8					0	
SW 33	1	Page number print setup	1: Yes	0: No	Yes	1	
	2	Inhibited to use				0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8	Reception data duplex print	1: Yes	0: No	No	0	Refer to User program “DUPLEX RCV”.
SW 34	1	Inhibited to use				0	
	2					0	
	3					0	
	4					0	
	5	Signal send level Max.	Binary input		–8dBm	1	
	6		Bit No.	5 6 7 8		0	
	7		Set range	0 (0dBm) to 15 (–15dBm)		0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 35	1	Cover function default setup	1: Yes	0: No	No	0	
	2	Answering telephone connection	1: Yes	0: No	Yes	1	
	3	CI delete max. OFF time	Bit No.	3 4	5sec	0	
			5sec	0 0			
			10sec	0 1			
	4		15sec	1 0		0	
			20sec	1 1			
	5	Answering machine call number setting	Binary input Bit No. 5 6 7 8 Set range 0 to 15 times		5 times	0	
	6					1	
	7					0	
	8					1	
SW 36	1	CNG/mute detection completion time	Binary input Bit No. 1 2 3 4 5 6 7 8 Set range 1 to 255sec		45sec	0	When a value outside the set range is set, the initial value is set.
	2					0	
	3					1	
	4					0	
	5					1	
	6					1	
	7					0	
	8					1	
SW 37	1	Silence detection start time	Binary input Bit No. 1 2 3 4 Set range 0 to 15sec		5sec	0	
	2					1	
	3					0	
	4					1	
	5	Mute judgment time	Binary input Bit No. 5 6 7 8 Set range 0 to 15sec (User 0 to 10sec) 0: Mute detection OFF		5sec	0	Refer to User program “AM MODE”.
	6					1	
	7					0	
	8					1	
SW 38	1	Protocol monitor	Bit No.	1 2	Not output	0	
			Not output	0 0			
			Not output	0 1			
	2		Output	1 0		0	
			Output only in an error	1 1			
	3	Protocol monitor save	1: Yes	0: No	Yes	1	
	4	Inhibited to use				0	
	5					0	
	6					0	
	7					1	
	8					0	
SW 39	1	Inhibited to use				0	
	2					0	
	3					1	
	4	DTMF signal send time	Binary input Bit No. 4 5 6 7 8 Set range 60 to 310ms 10ms unit		110ms	0	When a value outside the set range is set, the initial value is set.
	5					1	
	6					0	
	7					1	
	8					1	
SW 40	1	Number of times of recall in error	Binary input Bit No. 1 2 3 4 5 6 7 8 Set range 0 to 1 times		1 times	0	Refer to User program “RECALL TIMES (LINE ERROR)”. When a value outside the set range is set, the initial value is set.
	2					0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					1	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value		Remark
SW 41	1	Number of times of recall in busy	Binary input Bit No. 1 2 3 4 5 6 7 8 Set range 0 to 14 times	2 times	0	Refer to User program “RECALL TIMES (BUSY)”. When a value outside the set range is set, the initial value is set.
	2				0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				1	
	8				0	
SW 42	1	Direct send recall	1: Inhibit / 0: Allow	Allow	0	
	2	FAX receive auto select by CNG detection	1: Allow / 0: Inhibit	Allow	1	Refer to User program “FAX SIGNAL AUTO RECEIVE”.
	3	Auto receive select in answering telephone connection mode	1: Allow / 0: Inhibit	Inhibit	0	Refer to Main menu “AM MODE”.
	4	Inhibited to use			1	
	5				0	
	6				0	
	7				0	
	8	V.34 mode function in manual communication	1: ON / 0: OFF	ON	1	
SW 43	1	V.34 mode function	1: ON / 0: OFF	ON	1	
	2	Busy tone detection level table	1: variable (SRAM) / 0: constant (ROM)	constant (ROM)	0	
	3	V.34 primary channel return mode	1: PPh / 0: Sh	PPh	1	
	4	V.34 receive symbol speed mask	Bit No. 4 5 6 2400 0 0 0 2743 0 0 1 2800 0 1 0 3000 0 1 1 3200 1 0 0 3429 1 0 1	3429	1	When a value outside the set range is set, the initial value is set.
	5				0	
	6				1	
	7	Silence detection level table	1: variable (SRAM) / 0: constant (ROM)	constant (ROM)	0	
	8	Control channel retrain judgment in V.34 reception	1: Ignore EQM value / 0: Judge EQM value	Judge EQM value	0	
SW 44	1	V.34 primary channel send speed	Binary input Bit No. 1 2 3 4 Send speed = 2400 (bps) x N When N = 0, 2400bps. When N = 15, 33600bps.	33600bps	1	
	2				1	
	3				1	
	4				0	
	5	V.34 primary channel receive speed	Binary input Bit No. 5 6 7 8 Receive speed = 2400 (bps) x N When N = 0, 2400bps. When N = 15, 33600bps.	33600bps	1	
	6				1	
	7				1	
	8				0	
SW 45	1	FAST mode	1: Yes / 0: No	No	0	
	2	Sequence of year/ month/day in LCD, report, and sender record	Bit No. 2 3 Year/Month/Day 0 0 Month/Day/Year 0 1 Day/Month/Year 1 0 1 1	Month/Day/Year	0	Refer to User program “DATE&TIME FORMAT SET”. When a value outside the set range is set, the initial value is set.
	3				1	
	4	Time display format	1: am/pm / 0: 24H	am/pm	1	Refer to User program “DATE&TIME FORMAT SET”.
	5	Scan effective image area main scan right edge image loss (SPF)	Binary input Bit No. 5 6 7 8 Set range 0 to ± 360 dots 24 dot interval	96 dots	0	
	6				1	
	7				0	
	8				0	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 46	1	Specification of print sequence in duplex print	1: Print order (214365...)	0: Reception order (123456...)	Print order (214365...)	1	
	2	Specification of rotating direction duplex back surface print	1: 180 degrees rotation	0: No 180 degrees rotation	180 degrees rotation	1	
	3	Priority in the day of week	1: Yes	0: No	No	0	
	4	Center No. in FAST mode	1: Host-Tel-No.	0: Service-No.	Service-No.	0	
	5	Summer time	1: Allow	0: Inhibit	Inhibit	0	Refer to Entry Mode "DAY LIGHT SAVING".
	6	Inhibited to use				0	
	7					0	
	8					0	
SW 47	1	Inhibited to use				0	
	2	External telephone connection	1: Yes	0: No	Yes	1	
	3	Inhibited to use				0	
	4					0	
	5					0	
	6					1	
	7					0	
	8					0	
SW 48	1	Tone/Pulse default setup	Bit No. 1 2 10PPS 0 0 20PPS 0 1 TONE 1 0 1 1		TONE	1	01 (20PPS) is invalid except for Japan. Refer to User program "DIAL MODE". When a value outside the set range is set, the initial value is set.
	2					0	
	3	Telephone line menu	1: Inhibit	0: Allow	Allow	0	
	4	DP dial pulse number process	1: 10-N	0: Normal (N)	Normal (N)	0	
	5	Scan effective image area main scan left edge image loss (SPF)	Binary input Bit No. 5 6 7 8 Set range 0 to 360 dots 24 dot interval		96 dots	0	
	6					1	
	7					0	
	8					0	
SW 49	1	Inhibited to use				0	
	2					0	
	3	Speaker sound volume pattern number in DTMF send	Binary input Bit No. 3 4 5 6 7 8 Set range Pattern No. 1 to 35		21	0	When a value outside the set range is set, the initial value is set.
	4					0	
	5					0	
	6					0	
	7					0	
	8					1	
SW 50	1	Line monitor volume	Bit No. 1 2 Silent 0 0 Small 0 1 Medium 1 0 Large 1 1		Medium	1	When SPEAKER key is pressed, user setting can be made.
	2					0	
	3	Line monitor volume pattern number	Binary input Bit No. 3 4 5 6 7 8 Set range Pattern No. 1 to 35		16	0	When a value outside the set range is set, the initial value is set.
	4					1	
	5					0	
	6					0	
	7					0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value		Remark
SW51	1	DTMF send level (High group) setup	Binary input Bit No. 1 2 3 4 5 Set range 0 (0.0dBm) to 21 (–21.0dBm) 1.0dBm unit	–6dBm	0	When a value outside the set range is set, the initial value is set.
	2				0	
	3				1	
	4				1	
	5				0	
	6	CED detection time	1: 500ms / 0: 1000ms	1000ms	0	
	7	Busy tone detection cycle	Bit No. 7 8 2puls 0 0 4puls 0 1 6puls 1 0 10puls 1 1	2puls	0	
	8				0	
SW52	1	Busy tone detection level	Bit No. 1 2 –43dB 0 0 –35dB 0 1 –33dB 1 0 –30dB 1 1	–43dB	0	
	2				0	
	3	Inhibited to use			0	
	4	Super G3 disabled in the last call-out of recall in case of an error	1: Super G3 enabled / 0: Super G3 disabled	Super G3 disabled	0	
	5	Error process in RTN reception	1: Not error / 0: Error	Error	0	
	6	Inhibited to use			0	
	7				0	
	8	V.34 control channel communication speed	1: 2400bps / 0: 1200bps	1200bps	0	
SW53	1	Maximum DTMF send level	Binary input Bit No. 1 2 3 4 Set range 0 (0.0dBm) to 15 (–15.0dBm)	0dBm	0	
	2				0	
	3				0	
	4				0	
	5	DTMF send level (difference between high and low level)	Binary input Bit No. 5 6 7 8 Set range 0 (–2.0dBm) to 15 (+5.5dBm) 0.5dBm unit When set to 0: Low group = High group – (–2.0) dBm	+2.0dBm	1	
	6				0	
	7				0	
	8				0	
SW54	1	Scan effective image area sub scan lead edge image loss (SPF)	Binary input Bit No. 1 2 3 4 Set range 0 to 240 lines 16 line interval	96 lines	0	
	2				1	
	3				1	
	4				0	
	5	Scan effective image area sub scan rear edge image loss (SPF)	Binary input Bit No. 5 6 7 8 Set range 0 to 240 lines 16 line interval	144 lines	1	
	6				0	
	7				0	
	8				1	
SW55	1	CI signal OFF detection enable time	Binary input Bit No. 1 2 3 4 5 6 7 Set range 0 to 1270ms 10ms unit	1200ms	1	
	2				1	
	3				1	
	4				1	
	5				0	
	6				0	
	7				0	
	8	Inhibited to use			0	
SW56	1	CI signal ON detection enable time	Binary input Bit No. 1 2 3 Set range 0 (155ms) to 7 (225ms)	155ms	0	
	2				0	
	3				0	
	4	Inhibited to use			0	
	5	DT/BT detection frequency range	Bit No. 5 6 Modem fixed (400Hz) 0 0 420Hz–680Hz 0 1 360Hz–440Hz 1 0 245Hz–650Hz 1 1	420Hz–680Hz	0	
	6				1	
	7	Inhibited to use			0	
	8				1	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW57	1	Inhibited to use				0	
	2	Sharp machine mode	1: ON	0: OFF	ON	1	
	3	Inhibited to use				0	
	4	Reception gain adjustment	Binary input Bit No. 4 5 6 7 8 Set range 0 (+6.0dBm) to 24 (–6.0dBm) Step 0.5dBm		0.0dBm	0	
	5					1	
	6					1	
	7					0	
	8					0	
SW58	1	Dual wait inhibit time after CFR send	Binary input Bit No. 1 2 3 4 Set range 0 to 3000ms 200ms unit		1600ms	1	
	2					0	
	3					0	
	4					0	
	5	FSK signal settlement time in double wait	Binary input Bit No. 5 6 7 8 Set range Settlement time = 50 (ms) x N + 200 (ms)		550ms	0	
	6					1	
	7					1	
	8					1	
SW59	1	Inhibited to use				0	
	2					0	
	3	Reception SED ON level	Bit No.	3 4	–48dB	1	
			–43dB	0 0			
			–38dB	0 1			
	4		–33dB	1 0		1	
			–48dB	1 1			
	5	Transmission cable amplitude equalizer	Bit No.	5 6	0dB	0	
			0dB	0 0			
			4dB	0 1			
	6		8dB	1 0		0	
			12dB	1 1			
	7	Reception cable amplitude equalizer	Bit No.	7 8	0dB	0	
			0dB	0 0			
			4dB	0 1			
	8		8dB	1 0		0	
			12dB	1 1			
SW60	1	Scan effective image area sub scan lead edge image loss (SPF back surface)	Binary input Bit No. 1 2 3 4 Set range 0 to 240 lines 16 line interval		96 lines	0	
	2					1	
	3					1	
	4					0	
	5	Scan effective image area sub scan rear edge image loss (SPF back surface)	Binary input Bit No. 5 6 7 8 Set range 0 to 240 lines 16 line interval		144 lines	1	
	6					0	
	7					0	
	8					1	
SW61	1	Inhibited to use				0	
	2					0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					0	
SW62	1	Inhibited to use				0	
	2	CI signal ON time in V.8 mode	1: 18byte (480ms)	0: 9byte (240ms)	9byte (240ms)	0	
	3	CI signal OFF time in V.8 mode	1: 2sec	0: 1sec	1sec	0	
	4	V.8 mode ANSam signal send time	Bit No.	4 5	4sec	0	
			3sec	0 0			
			4sec	0 1			
	5		5sec	1 0		1	
			6sec	1 1			
	6	Inhibited to use				0	
	7					0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value	Remark
SW 63	1	CI receive number to shift to non-V.34 communication	Bit No. 1 2 Does not shift. 0 0 1 times 0 1 2 times 1 0 3 times 1 1	2 times	1
	2				0
	3	CI send number to shift to non-V.34 communication	Binary input Bit No. 3 4 5 Set range 0 to 7 times When N=0, retrain is not made.	2	0
	4				1
	5				0
	6	Inhibited to use			0
	7				1
	8				1
SW 64	1	Inhibited to use			0
	2				1
	3				0
	4				0
	5				0
	6				1
	7				1
	8				0
SW 65	1	Inhibited to use			0
	2				0
	3				0
	4				0
	5				0
	6				0
	7				0
	8				0
SW 66	1	Inhibited to use			0
	2				0
	3				0
	4				0
	5				0
	6				0
	7				0
	8				0
SW 67	1	Make time (10PPS) setup	Binary input Bit No. 1 2 3 4 Set range 26 to 41ms by increment of 1ms	40ms	1
	2				1
	3				1
	4				0
	5	Inhibited to use			0
	6				0
	7				0
	8				0
SW 68	1	Line open delay time in dial test	Bit No. 1 2 2sec 0 0 3sec 0 1 4sec 1 0 5sec 1 1	2sec	0
	2				0
	3	Inhibited to use			0
	4				0
	5	T1 timer setup	Binary input Bit No. 5 6 7 8 Set range 30 to 105sec 5sec interval	40sec	0
	6				0
	7				1
	8				0
SW 69	1	Inhibited to use			0
	2				0
	3				0
	4				0
	5				0
	6				0
	7				0
	8				0

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 70	1	Inhibited to use				0	
	2					1	
	3					0	
	4	Reception waiting time between frames	1: 4.4sec	0: 3.4sec	3.4sec	0	
	5	Preamble send time of 300bps	Bit No.	5 6	1.0sec	0	
			0.5sec	0 0			
			1.0sec	0 1			
	6		1.5sec	1 0		1	
			2.0sec	1 1			
	7	RCP send times	Bit No.	7 8	3 times	0	
			3 times	0 0			
			6 times	0 1			
	8		9 times	1 0		0	
			12 times	1 1			
SW 71	1	Inhibited to use				0	
	2					0	
	3					0	
	4					0	
	5					1	
	6					1	
	7					0	
	8					0	
SW 72	1	EYE-Q check	1: EYE-Q check only	0: 0 reception & EYE-Q check	0 reception & EYE-Q check	0	
	2	ERR frame reception operation	1: Continues process.	0: Not continue process. (Error)	Not continue process. (Error)	0	
	3	Waiting time for CED/ ANSam send start	Bit No.	3 4	2.25sec	0	When a value outside the set range is set, the initial value is set.
			2.25sec	0 0			
	4		3sec	0 1		0	
			4sec	1 0			
	5	RTC EOL send times	1: 6 times	0: 7 times	6 times	1	
	6	Inhibited to use				0	
	7	CNG send start	Bit No.	7 8	0.5sec	0	When a value outside the set range is set, the initial value is set.
			0.5sec	0 0			
	8		1.0sec	0 1		0	
			1.5sec	1 0			
SW 73	1	Minimum flags between frames	Bit No.	1 2	2-flag	0	
			2-flag	0 0			
			3-flag	0 1			
	2		4-flag	1 0		0	
			5-flag	1 1			
	3	Phase C head dummy data send time	Bit No.	3 4	0.2sec	0	
			0.2sec	0 0			
			0.3sec	0 1			
	4		0.4sec	1 0		0	
			0.5sec	1 1			
	5	Inhibited to use				0	
	6					0	
	7	Flag-adrs timer setup (V.21-FSK)	Bit No.	7 8	6sec	0	
			6sec	0 0			
			15sec	0 1			
	8		30sec	1 0		0	
			120sec	1 1			
SW 74	1	Print effective image area sub scan lead edge void	Binary input		32 lines	0	
	2		Bit No.	1 2 3 4		0	
	3		Set range	0 to 240 lines		1	
	4			16 line interval (600dpi)		0	
	5	Inhibited to use				0	
	6					0	
	7					1	
	8					1	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value		Remark
SW 75	1	Inhibited to use			0	
	2				0	
	3	Communication end sound (Buzzer sound length) setting	Bit No. 3 4 3sec 0 0 1sec 0 1 Silent 1 0	3sec	0	Communication error sound is generated even in silent setup Refer to User program "BEEP LENGTH". When a value outside the set range is set, the initial value is set.
	4				0	
	5	Print effective image area main scan void	Binary input Bit No. 5 6 7 8 Set range 0 to 240 dots 16 dots interval	48 dots	0	
	6				0	
	7				1	
	8				1	
SW 76	1	Scan magnification ratio adjustment (SPF main scan)	1: – 0: +	+	0	
	2		Binary input Bit No. 2 3 4 5 6 7 8 Set range 0 to ±12.7% 0.1% interval	0%	0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 77	1	Scan magnification ratio adjustment (SPF sub scan)	1: – 0: +	+	0	
	2		Binary input Bit No. 2 3 4 5 6 7 8 Set range 0 to ±12.7% 0.1% interval	0%	0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 78	1	Print magnification ration adjustment (main scan)	1: – 0: +	+	0	
	2		Binary input Bit No. 2 3 4 5 6 7 8 Set range 0 to ±12.7% 0.1% interval	0%	0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 79	1	Print magnification ration adjustment (sub scan)	1: – 0: +	+	0	
	2		Binary input Bit No. 2 3 4 5 6 7 8 Set range 0 to ±12.7% 0.1% interval	0%	0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 80	1	Destination information	Binary input Bit No. 1 2 3 4 5 6 7 8 North America: 1 0 1 1 0 1 0 1	North America	1	
	2				0	
	3				1	
	4				1	
	5				0	
	6				1	
	7				0	
	8				1	
SW 81	1	Language information	Binary input Bit No. 1 2 3 4 5 6 7 8 1: American English	American English	0	Only command receive from the main unit can be rewritten.
	2				0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				1	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value	Remark
SW 82	1	OC scan size default setting	Bit No. 1 2 3 4 0 0 0 0 LETTER 0 0 0 1 LEGAL 0 0 1 0 A4 0 0 1 1	LETTER 0	Refer to User program “OC SIZE PRIORITY”. When a value outside the set range is set, the initial value is set.
	2			0	
	3			0	
	4			1	
	5	Inhibited to use		0	
	6			0	
	7			0	
	8			0	
SW 83	1	Inhibited to use		0	
	2			0	
	3	Speaker sound volume setting pattern number	Binary input Bit No. 3 4 5 6 7 8 Set range Pattern No. 1 to 35	1 0	When a value outside the set range is set, the initial value is set.
	4			0	
	5			0	
	6			0	
	7			0	
	8			1	
SW 84	1	Inhibited to use		0	
	2			0	
	3			0	
	4			0	
	5			1	
	6			0	
	7			0	
	8			0	
SW 85	1	Inhibited to use		0	
	2			0	
	3			0	
	4			0	
	5			0	
	6			0	
	7			0	
	8			0	
SW 86	1	Inhibited to use		0	
	2			0	
	3			0	
	4			0	
	5			0	
	6			0	
	7			0	
	8			0	
SW 87	1	Inhibited to use		1	
	2			0	
	3			0	
	4			0	
	5			1	
	6			1	
	7			0	
	8			1	
SW 88	1	Inhibited to use		0	
	2			0	
	3			0	
	4			0	
	5			0	
	6			0	
	7			0	
	8			0	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 89	1	Inhibited to use				0	
	2					0	
	3					1	
	4					1	
	5					1	
	6					1	
	7					1	
	8					1	
SW 90	1	Inhibited to use				1	
	2					1	
	3					1	
	4					1	
	5					1	
	6					1	
	7					1	
	8					1	
SW 91	1	Symbol speed 3429 send enable in V.34 send	1: Enable	0: Disable	Enable	1	
	2	Symbol speed 3200 high carrier send enable in V.34 send	1: Enable	0: Disable	Enable	1	
	3	Symbol speed 3200 low carrier send enable in V.34 send	1: Enable	0: Disable	Enable	1	
	4	Symbol speed 3000 high carrier send enable in V.34 send	1: Enable	0: Disable	Enable	1	
	5	Symbol speed 3000 low carrier send enable in V.34 send	1: Enable	0: Disable	Enable	1	
	6	Symbol speed 3429 enable in V.34 send	1: Enable	0: Disable	Enable	1	
	7	Symbol speed 2800 enable in V.34 send	1: Enable	0: Disable	Enable	1	
	8	Symbol speed 2743 enable in V.34 send	1: Enable	0: Disable	Enable	1	
SW 92	1	Inhibited to use				0	
	2					1	
	3					0	
	4					1	
	5					1	
	6					0	
	7					0	
	8					0	
SW 93	1	Inhibited to use				0	
	2					1	
	3					0	
	4					1	
	5					1	
	6					0	
	7					0	
	8					0	
SW 94	1	Inhibited to use				0	
	2					1	
	3					0	
	4					1	
	5					1	
	6					0	
	7					0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions	Initial value		Remark
SW 95	1	Inhibited to use			0	
	2				1	
	3				1	
	4				1	
	5				0	
	6				0	
	7				0	
	8				0	
SW 96	1	Inhibited to use			1	
	2				1	
	3				0	
	4				1	
	5				1	
	6				0	
	7				0	
	8				0	
SW 97	1	Inhibited to use			0	
	2				1	
	3				1	
	4				1	
	5				1	
	6				1	
	7				1	
	8				1	
SW 98	1	Inhibited to use			0	
	2				1	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 99	1	Inhibited to use			0	
	2				1	
	3				0	
	4				1	
	5				1	
	6				0	
	7				0	
	8				0	
SW 100	1	Inhibited to use			1	
	2				0	
	3				0	
	4				0	
	5				0	
	6				0	
	7				0	
	8				0	
SW 101	1	Print effective image area sub scan lead edge void (Back surface)	Binary input Bit No. 1 2 3 4 Set range 0 to 240 lines 16 line interval (600dpi)	32 lines	0	
	2				0	
	3				1	
	4				0	
	5	Print effective image area sub scan rear edge void (Back surface)	Binary input Bit No. 5 6 7 8 Set range 0 to 240 lines 16 line interval (600dpi)	48 lines	0	
	6				0	
	7				1	
	8				1	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 102	1	Scan effective image area main scan left edge image loss (OC)	Binary input Bit No. Set range	1 2 3 4 0 to 360 dots 24 dot interval	96 dots	0	
	2					1	
	3					0	
	4					0	
	5	Scan effective image area main scan right edge image loss (OC)	Binary input Bit No. Set range	5 6 7 8 0 to 360 dots 24 dot interval	96 dots	0	
	6					1	
	7					0	
	8					0	
SW 103	1	Scan effective image area sub scan lead edge image loss (OC)	Binary input Bit No. Set range	1 2 3 4 0 to 240 line 16 line interval	96 lines	0	
	2					1	
	3					1	
	4					0	
	5	Scan effective image area sub scan rear edge image loss (OC)	Binary input Bit No. Set range	5 6 7 8 0 to 240 line 16 line interval	144 lines	1	
	6					0	
	7					0	
	8					1	
SW 104	1	Scan effective image area main scan left edge image loss (SPF back surface)	Binary input Bit No. Set range	1 2 3 4 0 to 360 dots in the interval of 24 dots	96 dots	0	
	2					1	
	3					0	
	4					0	
	5	Scan effective image area main scan right edge image loss (SPF back surface)	Binary input Bit No. Set range	5 6 7 8 0 to 360 dots in the interval of 24 dots	96 dots	0	
	6					1	
	7					0	
	8					0	
SW 105	1	Scan magnification ratio adjustment (OC main scan)	1: –	0: +	+	0	
	2		Binary input Bit No. Set range	2 3 4 5 6 7 8 0 to ±12.7% 0.1% interval	0%	0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					0	
SW 106	1	Scan magnification ratio adjustment (OC sub scan)	1: –	0: +	+	0	
	2		Binary input Bit No. Set range	2 3 4 5 6 7 8 0 to ±12.7% 0.1% interval	0%	0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					0	
SW 107	1	Scan magnification ratio adjustment (SPF back surface main scan)	1: –	0: +	+	0	
	2		Binary input Bit No. Set range	2 3 4 5 6 7 8 0 to ±12.7% 0.1% interval	0%	0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					0	
SW 108	1	Scan magnification ratio adjustment (SPF back surface sub scan)	1: –	0: +	+	0	
	2		Binary input Bit No. Set range	2 3 4 5 6 7 8 0 to ±12.7% 0.1% interval	0%	0	
	3					0	
	4					0	
	5					0	
	6					0	
	7					0	
	8					0	

SW NO.	Data No.	Item	Switch selection and contents of functions		Initial value		Remark
SW 109	1	Print magnification ratio adjustment (Main scan back surface)	1: –	0: +	+	0	
	2		Binary input			0	
	3		Bit No.	2 3 4 5 6 7 8		0	
	4		Set range	0 to ±12.7%		0	
	5			0.1% interval	0%	0	
	6					0	
	7					0	
	8					0	
SW 110	1	Print magnification ratio adjustment (Sub scan back surface)	1: –	0: +	+	0	
	2		Binary input			0	
	3		Bit No.	2 3 4 5 6 7 8		0	
	4		Set range	0 to ±12.7%		0	
	5			0.1% interval	0%	0	
	6					0	
	7					0	
	8					0	

7. Soft switch descriptions

SW1 No.1, No.2 Image quality priority selection

Used to select the image quality setting when pressing C/A key or during auto clear.

Default: 0 0 (Normal)

SW1 No.3 Inhibited to use

SW1 No.4 Auto/Manual default setup

Used to select Auto/Manual reception mode when turning on the power.

Default: 0 (Automatic reception)

SW1 No.5 Send request protection

Used to set enable/disable of the confidential function (inhibit to send to erroneous destinations) in send request communication (remote send).

The confidential function is performed by collating the number registered in this machine and the number registered in the remote machine.

Sender number ↔ Send request allow number

Default: 0 (Protected)

SW1 No.6–No.8 Inhibited to use

SW2 No.1–No.4 Inhibited to use

SW2 No.5–No.8 Remote selection number setup

Used to set the number in binary input for remote switch receive from external telephone.

However, "∗" in the remote switch number (X∗∗) is fixed.

Default: 5

SW3 No.1–No.5 Density default setup

Used to set the density when pressing C/A key or during auto clear.

Default: 0 0 1 0 0 (Medium)

SW3 No.6 Inhibited to use

SW3 No.7, No.8 Size specification

Used to set the size specification (AB series, inch series).

Under setting of "Follow information from machine," when command information from the machine is uncertain, set this item to AB series.

Default: 0 1 (Conforms to the machine information.)

SW4 No.1–No.4 Recall interval in communication error

Used to set the interval for recall when communication is cut off by an error during memory send. (Including no response from the remote machine.)

Setting is made in binary input.

When set to 0, resend is mad immediately after completion of communication.

However, the time interval set by SW21 "Interval between completion of communication and the next call" is valid.

Default: 1min

SW4 No.5–No.8 Recall interval in busy

Used to set the interval for the next call when busy tone is detected in communication.

Setting is made in binary input.

Default: 3min

SW5 No.1, No2 Inhibited to use

SW5 No.3, No.4 G3 send data accumulation wait time

Used to set wait time for accumulation of image data before sending image data directly.

Default: 0 0 (6sec)

SW5 No.5–No.8 Pause time setup

Used to set pause time when registering dials.

Default: 2sec

SW6 No.1 ECM

Used to set YES/NO of error resend mode.

When, however, SW43-1 (V.34 mode function) is OFF or when SW34-1 (V.34 mode function) is ON and send is made other than SG3, ECM setting of "NO" is valid.

Since the ECM function is essential in V.34 mode and the remote machine may perform checking, when SW43-1 (V.34 mode function) is ON , this function is invalid in reception.

Default: 1 (Yes)

SW6 No.2 CED signal send

Used to set YES/NO of CED signal send.

This is valid only when SW52-7 (V.34 mode function) is OFF.

This is because ANSam signal send is necessary for V.34 mode.

When set to 1, CED signal send is performed.

When set to 0, CED signal send is not performed.

Default: 1 (Yes)

SW6 No.3 CSI transmission

Used to set YES/NO of CSI signal send.

CSI signal includes the sender's number.

Default: 1 (Yes)

SW6 No.4 DIS reception confirmation in G3 send

Used to set YES/NO of DIS receive check in G3 mode send.

When set to 1, DIS receive twice is checked.

When set to 0, DIS once is checked when "NSF/DIS" is received; and DIS twice is checked when NSF is not received.

Default: 0 (Once in NFS reception, 2 time in DIS reception)

SW6 No.5 Inhibited to use

SW6 No.6 EOL detection timer

Used to set detection timer of EOL (EndOfLine) in Phase C receive.

Default: 0 (13sec)

SW6 No.7 Countermeasure for echo in reception (CED tone send interval)

Used to set the interval from CED send to FSK signal send of DIS.

Default: 0 (75ms)

SW6 No.8 Countermeasure for echo in transmission (After reception of DIS, hold time up to signal send is set.)

Used to set the interval from DIS receive to DSC signal send.

Default: 0 (200ms)

SW7 No.1 Inhibited to use

SW7 No.2 Dial tone detection

Used to set whether dial tone is detected or not when calling out.

When set to 1, dial tone is detected before calling out.

When set to 0, dial tone is not detected and dialing is made after a certain time (3.5sec).

Default: 0 (No)

SW7 No.3 Busy tone detection

Used to set YES/NO of busy tone detection when calling out.

Default: 1 (Yes)

SW7 No.4 Dial tone monitoring time

Used to set the monitoring time when detecting dial tone.

Default: 0 (5sec)

SW7 No.5 Inhibited to use

SW7 No.6 Max. length of reception

Used to set max. length of reception for long document.

Default: 0 (1.5m)

SW7 No.7, No.8 Destination display time when one-touch key is pressed

Used to set the time from displaying the destination to the next operation in one-touch dial or reduction dial.

Default: 0 0 (2sec)

SW8 No.1 Memory transmission/direct transmission default setup

Used to set whether memory send is ON or direct send is made (OFF) in the memory mode when pressing C/A key or auto clear.

Default: 0 (Memory transmission)

SW8 No.2 Proxy reception

Used to set whether proxy reception is enabled or not.

When set to 0, under the following error status, auto receive is not made in auto receive mode.

- Cover open
- Unit error (Toner, drum, developing-related errors)
- Recording paper JAM
- Document JAM
- Recording paper empty

When set to 1, proxy reception is allowed.

Default: 1 (Yes)

SW8 No.3 Inhibited to use

SW8 No.4 Quick online send

Used to set whether quick online send function is enabled or not.

When set to 0, send in memory mode ON is made in memory send.

When set to 1, send in memory mode ON is made in quick online send.

Default: 1 (Yes)

SW8 No.5 Remote select function

Used to set whether remote select function is enabled or not.

Default: 1 (Yes)

SW8 No.6–No.8 Number of times of CNG detection

Used to set the number of times of CNG detection for judgment of detection.

Default: 3 times

SW9 No.1 Print of total communication time and total pages

Used to set whether the total communication time and total pages are printed on the communication report or not.

When set to 1, the total communication time and total pages are printed on the communication report.

When set to 0, the total communication time and total pages are not printed on the communication report.

Default: 1 (Yes)

SW9 No.2 Inhibited to use

SW9 No.3–No.8 Ringing volume pattern number

Used to set ringing volume pattern.

Default: 7

SW10 No.1 Measurement of communication time (image)

Used to set YES/NO of measurement of communication time in phase C. It is the communication time in the latest phase C. (Unit: msec)

Valid only in ECM communication.

Default: 1 (Yes)

SW10 No.2 Sender's telephone number registration

Used to set whether registered sender's telephone number can be changed or not.

Default: 0 (Allow)

SW10 No.3–No.5 Inhibited to use

SW10 No.6 ECM byte/frame

Used to set the frame size of error correction mode to be notified to the remote machine.

Default: 0 (256 [bytes/frame])

SW10 No.7, No.8 Inhibited to use

SW11 No.1–No.8 Scanner resource holding time out in direct send

Used to set time-out time to hold scanner resource in direct send.

Default: 26sec

SW12 No.1–No.4 Call time setup in automatic transmission (T0 timer setup)

Used to set call time in automatic send.

Setting is made by binary input of N into "(5sec x N) + 30sec" in the increment of 5sec.

Default: 45sec

SW12 No.5 Inhibited to use

SW12 No.6, No.7 CI detection

Used to set the detection frequency of CI signal (call signal).

Default: 0 0 (4 sine wave)

SW12 No.8 Inhibited to use

SW13 No.1, No.2 Inhibited to use

SW13 No.3, No.4 Ringing volume

Used to set the ringing volume when call-in.

Default: 1 0 (Medium)

SW13 No.5, No.6 Speaker volume in DTMF send

Used to set the volume of transmission and DTMF sound from the speaker when SPEAKER key is pressed.

Default: 1 0 (Medium)

SW13 No.7, No.8 Inhibited to use

SW14 No.1–No.8 Inhibited to use

SW15 No.1 Busy tone detection time (Lower limit)

Used to set the lower limit of busy tone detection time (ON time).

Default: 0 (250ms)

SW15 No.2 Busy tone detection time (Upper limit)

Used to set the upper limit of busy tone detection time (ON time).

Default: 0 (750ms)

SW15 No.3 Busy tone detection time (Lower limit 2)

Used to set the lower limit 2 of busy tone detection time (ON time).

Default: 0 (Follows SW15-1.)

SW15 No.4–No.8 Signal send level

Used to set signal send level from MODEM.

Setting is made in binary input in the increment of 1dBm.

Default: –12dBm

SW16 No.1–No.4 Modem speed (V.33 mode or less)

Used to set send start speed in communication other than V.34 mode.

In an area of poor communication conditions, it is recommended to set communication speed to a lower level in advance.

Default: 1 0 0 0 (V.17 14.4kbps)

SW16 No.5, No.6 Modem speed in reception fixed

Used to set receive procedure start speed in a remote machine other than V.34.

In setting of no fixing, the operations are the same as V.17-14400BPS.

Default: 0 0 (No fixing)

SW16 No.7, No.8 Inhibited to use

SW17 No.1 Inhibited to use

SW17 No.2 MH fixed (Except for SG3)

Used to set whether coding capacity is fixed to MH or not in communication other than SG3.

Default: 0 (No)

SW17 No.3 ECM MMR (Except for SG3)

Used to set whether MMR coding capacity is allowed or not in communication other than SG3.

Default: 1 (Yes)

SW17 No.4 ECM JBIG (Except for SG3)

Used to set whether JBIG coding capacity is allowed or not in communication other than SG3.

Default: 1 (Yes)

SW17 No.5 Inhibited to use

SW17 No.6 MH fixed (in SG3)

Used to set whether coding capacity is fixed to MH or not in SG3 communication.

Default: 0 (No)

SW17 No.7 ECM MMR (in SG3)

Used to set whether MMR coding capacity is allowed or not in SG3 communication.

Default: 1 (Yes)

SW17 No.8 ECM JBIG (in SG3)

Used to set whether JBIG coding capacity is allowed or not in SG3 communication.

Default: 1 (Yes)

SW18 No.1–No.8 Inhibited to use

SW19 No.1–No.5 Inhibited to use

SW19 No.6 Recording table automatic print

Used to set whether communication report is automatically outputted or not when the number of send/receive items which have not outputted yet on communication report reaches 50.

When set to 1, they are automatically outputted.

When set to 0, they are not outputted even the number of items reaches 50.

Default: 0 (No)

SW19 No.7, No.8 Inhibited to use

SW20 No.1, No.2 Line sound monitor range

Used to set line sound monitor range when line sound monitor function is used.

Default: 0 0 (OFF)

SW20 No.3 Line monitor display

Used to set whether the communication speed and the receive level are displayed on LCD or not.

Default: 0 (No)

SW20 No.4 Inhibited to use

SW20 No.5 Receivable memory capacity

Used to set the remained memory capacity for allowing call-in.

Default: 0 (128Kbyte)

SW20 No.6–No.8 Inhibited to use

SW21 No.1–No.8 Interval between completion of communication and the next call

Used to set the interval between completion of communication and the next call.

Setting is made in binary input.

Default: 1sec

SW22 No.1–No.8 Inhibited to use

SW23 No.1–No.8 Inhibited to use

SW24 No.1, No.2 Inhibited to use

SW24 No.3, No4 Specified number reception (ANTI JUNK FAX)

Used to set whether the FAX receive rejection function is made valid or not for registered FAX numbers.

Default: 0 0 (Not set.)

SW24 No.5 Inhibited to use

SW24 No.6 Document output setup in reception

Used to set the document output procedure; whether all the received documents are collectively outputted after completion of reception or every page is outputted when it is received.

Default: 0 (Output after reception of every page)

SW24 No.7 Inhibited to use

SW24 No.8 Automatic reduction print

Used to set whether automatic reduction print is performed or not so that a document longer than the fixed size and smaller than the automatic reduction line number setting is printed on fixed size paper.

Default: 1 (Allow)

SW25 No.1–No.4 Automatic reduction rate setup

Used to set automatic reduction rate when automatic reduction print is valid.

Default: 10%

SW25 No.5, No.6 Transmission end sound tone

Used to set transmission end sound tone in transmission.

Default: 0 1 (1000Hz)

SW25 No.7, No.8 Reception end sound tone

Used to set reception end sound tone in reception.

Default: 0 1 (1000Hz)

SW26 No.1 Read completion sound

Used to set whether buzzer sound is made or not when scan is completed.

In manual send or when scan is completed in direct send, buzzer sound is not made.

Default: 0 (1sec)

SW26 No.2 Inhibited to use

SW26 No.3, No.4 Speaker volume setup

Used to set speaker volume.

The following sounds are the targets of this setting.

- Alarm sound
- Send end sound
- Receive end sound
- Scan end sound

Default: 0 1 (Small)

SW26 No.5–No.8 Inhibited to use

SW27 No.1–No.6 Inhibited to use

SW27 No.7, No.8 Recording paper tray selection

Used to select the recording paper tray used by FAX.

Valid only when two cassettes are installed.

Default: 0 0 (AUTO)

SW28 No.1–No.8 Inhibited to use

SW29 No.1–No.4 Number of auto switch calls of manual reception → auto reception

Used to set the number of calls to switch to auto receive in manual receive mode.

When set to 0, switch to auto receive is not made.

Default: 0 time

SW29 No.5–No.8 Setup of number of times of call rings

Used to set the number of calls before starting reception in auto receive mode.

Setting is made in binary input.

Default: 2 times

SW30 No.1 Report output when canceling

Used to set whether the user cancel report is outputted or not when send is canceled during document send.

Default: 0 (Not output)

SW30 No.2–No.4 Inhibited to use

SW30 No.5 Default data, sender print

Used to set whether sender information (registered in the sender registration), sending date, and time are printed on the upper edge of send document or not.

Default: 1 (ON)

SW30 No.6 Inhibited to use

SW30 No.7 Date/sender print position setup

Used to set whether date/sender information is printed inside the document area or outside the document area.

Default: 0 (Outside of document)

SW30 No.8 Inhibited to use

SW31 No.1, No.2 Report output (in transmission)

Used to set whether communication report is outputted or not after completion of sending (excluding sequential broadcast and sequential send request).

Default: 1 0 (Only when transmission is failed.)

SW31 No.3, No.4 Report output (In broadcast and sequential send request)

Used to set whether communication report is outputted or not after completion of sending (sequential broadcast and sequential send request).

Default: 0 1 (All print)

SW31 No.5, No.6 Report output (in reception)

Used to set whether communication report is outputted or not in reception.

Default: 0 0 (Print inhibited)

SW31 No.7, No.8 Contents of send document are printed in memory send

Used to set whether part of send document is printed on the communication report or not in memory send.

Default: 1 0 (Only the address to which transmission is failed)

SW32 No.1–No.4 Distinctive ringing

Used to set the ringing pattern as FAX reception.

Default: 0 0 0 0 (OFF)

SW32 No.5 Inhibited to use

SW32 No.6 Index print setup

Used to set whether the index is printed when outputting received document or not.

Default: 0 (Not print)

SW32 No.7, No.8 Inhibited to use

SW33 No.1 Page number print setup

Used to set whether the page number is added to the sender information print or not.

Default: 1 (Yes)

SW33 No.2–No.7 Inhibited to use

SW33 No.8 Reception data duplex print

Used to set whether duplex print of received data is made or not.

Default: 0 (No)

SW34 No.1–No.4 Inhibited to use

SW34 No.5–No.8 Signal send level Max.

Used to set the max. signal send level.

Default: –8dBm

SW35 No.1 Cover function default setup

Used to set whether cover is added as default or not.

When auto clear is made by pressing C/A key, the machine returns to this setting.

Default: 0 (No)

SW35 No.2 Answering telephone connection

Used to set whether the functions of answering telephone connection mode are enabled or not.

Default: 1 (Yes)

SW35 No.3, No.4 CI delete max. OFF time

Used to set the max. wait time between detection of CI signal pulse (number of times) and detection of the next CI signal pulse.

If CIK signal pulse is not detected within this time, the number of calls up to that time is cleared.

Default: 0 0 (5sec)

SW35 No.5–No.8 Answering machine call number setting

Used to set the number of calls to switch to auto receive when answering telephone is not called in when the receive mode is set to the answering telephone connection mode.

Setting is made in binary input.

Default: 5 times

SW36 No.1–No.8 CNG/mute detection completion time

Used to set the time for completion of CNG signal/mute detection in the answering telephone connection mode.

Count is made from the last call signal.

Setting is made in binary input.

Default: 45sec

SW37 No.1–No.4 Silence detection start time

Used to set the time between reception of external telephone and detection of mute in the answering telephone connection mode.

Default: 5sec

SW37 No.5–No.8 Mute judgment time

Used set the mute judgment time when mute is continued for several seconds.

Default: 5sec

SW38 No.1, No.2 Protocol monitor

Used to set whether communication protocol result is printed or not after completion of communication.

Default: 0 0 (Not printed.)

SW38 No.3 Protocol monitor save

Used to set whether the protocol monitor of the last communication is saved or not. When set to "Saved," the previous protocol monitor can be printed with SIM 66-21.

Default: 1 (Yes)

SW38 No.4–No.8 Inhibited to use

SW39 No.1–No.3 Inhibited to use

SW39 No.4–No.8 DTMF signal send time

Used to set DTMF signal send time.

Setting is made in binary input by the increment of 10ms.

Default: 110ms

SW40 No.1–No.8 Number of times of recall in error

Used to set the number of times of recall when a communication error occurs.

Setting is made in binary input.

When set to 0, recall is not made.

Default: 1 times

SW41 No.1–No.8 Number of times of recall in busy

Used to set the number of times of recall when busy tone is detected during transmission.

Setting is made in binary input.

When set to 0, recall is not made.

Default: 2 times

SW42 No.1 Direct send recall

Used to set whether direct send recall wait is allowed or not.

Default: 0 (Allow)

SW42 No.2 FAX receive auto select by CNG detection

Used to set whether FAX receive auto select is enabled or not when CNG signal is detected with external telephone used.

Default: 1 (Allow)

SW42 No.3 Auto receive select in answering telephone connection mode

Used to set whether auto receive select function in answering telephone connection mode is enabled or not.

Default: 0 (Inhibit)

SW42 No.4–No.7 Inhibited to use

SW42 No.8 V.34 mode function in manual communication

Used to set whether V.34 mode is enabled or not in manual communication.

When, however, SW43-1 is set to "0: OFF," V.34 mode is disabled even tough this switch is set to "1: ON."

Default: 1 (ON)

SW43 No.1 V.34 mode function

Used to set whether V.34 mode is enabled or not as a capacity of own machine in send/receive.

Default: 1 (ON)

SW43 No.2 Busy tone detection level table

Used to set the busy tone detection level table.

Default: 0 (constant (ROM))

SW43 No.3 V.34 primary channel return mode

Used to set V.34 primary channel return mode.

Default: 1 (PPh)

SW43 No.4–No.6 Symbol speed mask in V.34 receive

Used to set symbol speed mask in V.34 receive.

Default: 1 0 1 (3429)

SW43 No.7 Silence detection level table

Used to set the mute detection level table.

Default: 0 (constant (ROM))

SW43 No.8 Control channel retrain judgment in V.34 reception

Used to set control channel retrain judgment in V.34 reception.

Default: 0 (Judge EQM value)

SW44 No.1–No.4 V.34 primary channel send speed

Used to set send start speed in V.34 send.

Setting is made in binary input of N in "2400 (bps) x N" in the range of 2400bps – 33600bps.

N is set in the range of 0 – 15. When set to 0, 2400bps; when set to 15, 33600bps.

When set to 2400bps, all of SW91 No. 1 – 8 must be set as "Disable".

Default: 33600bps

SW44 No.5–No.8 V.34 primary channel receive speed

Used to set receive start speed in V.34 receive.

Setting is made in binary input of N in "2400 (bps) x N" in the range of 2400bps – 33600bps.

N is set in the range of 0 – 15. When set to 0, 2400bps; when set to 15, 33600bps.

When set to 2400bps, all of SW43 No. 4 – 6 must changed to 2400.

Default: 33600bps

SW45 No.1 FAST mode

Used to set whether FAST function is enabled or not.

Default: 0 (No)

SW45 No.2, No.3 Sequence of year/month/day in LCD, report, and sender record

Used to set the sequence of year/month/day in LCD, report, and sender record.

Default: 0 1 (Month/Day/Year)

SW45 No.4 Time display format

Used to set time display format in LCD, report, and sender record.

Default: 1 (am/pm)

SW45 No.5–No.8 Scan effective image area main scan right edge image loss (SPF)

Used to set image loss of scan effective area.

Image loss on the right edge in SPF main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW46 No.1 Specification of print sequence in duplex print

Used to set the print sequence in duplex print of received data.

When set to 1, an odd-number page is printed after printing the next even-number page. (214365...)

When set to 0, print is made in the ordinary reception order. (123456...)

Default: 1 (Print order (214365...))

SW46 No.2 Specification of rotating direction duplex back surface print

Used to set whether the back surface is rotated 180 degrees in duplex print or not.

When set to 1, the back surface is rotated 180 degrees and printed.

When set to 0, the back surface is not rotated and printed.

Default: 1 (180 degrees rotation)

SW46 No.3 Priority in the day of week

Used to set which is indicated first, day or day of week, when date format is in the sequence of day, month, and year.

When set to 1, day of week is indicated first, and then day is indicated.

When set to 0, day is indicated first, and then day of week is indicated.

Default: 0 (No)

SW46 No.4 Center No. in FAST mode

Used to set which is set as FAST center number, Service-No or Host-Tel-No.

Default: 0 (Service-No.)

SW46 No.5 Summer time

Used to set whether summer time function is enabled or not.

When set to 1, summer time function is enabled.

When set to 0, summer time function is disabled.

Default: 0 (Inhibit)

SW46 No.6–No.8 Inhibited to use

SW47 No.1 Inhibited to use

SW47 No.2 External telephone connection

Used to set whether external telephone is used or not.

This switch must be set to YES in order to use external telephone.

Default: 1 (Yes)

SW47 No.3–No.8 Inhibited to use

SW48 No.1, No.2 Tone/Pulse default setup

Used to set the dial type.

Default: 1 0 (TONE)

SW48 No.3 Telephone line menu

Used to set whether tone/pulse setting is displayed on the menu or not.

Default: 0 (Allow)

SW48 No.4 DP dial pulse number process

Used to set pulse number process in pulse dial.

Default: 0 (Normal (N))

SW48 No.5–No.8 Scan effective image area main scan left edge image loss (SPF)

Used to set image loss of scan effective area.

Image loss on the left edge in SPF main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW49 No.1, No.2 Inhibited to use

SW49 No.3–No.8 Speaker sound volume pattern number in DTMF send

Used to set sound volume pattern in DTMF send.

Default: 21

SW50 No.1, No.2 Line monitor volume

Used to set on-hook monitor volume and line volume in FAX communication.

Default: 1 0 (Medium)

SW50 No.3–No.8 Line monitor volume pattern number

Used to set line monitor volume pattern.

Default: 16

SW51 No.1–No.5 DTMF send level (High group) setup

Used to set high-group send level in DTMF signal send.

Setting is made in binary input in the increment of 1.0dBm.

Default: –6dBm

SW51 No.6 CED detection time

Used to set detection time of CED/ANSam signal for judgment of detection.

Default: 1000ms

SW51 No.7, No.8 Busy tone detection cycle

Used to set detection cycle of pulses of busy tone for detection of busy tone.

Default: 0 0 (2puls)

SW52 No.1, No.2 Busy tone detection level

Used to set the mini. Detection level in busy tone detection.

Default: 0 0 (–43dB)

SW52 No.3 Inhibited to use

SW52 No.4 Super G3 disabled in the last call-out of recall in case of an error

Used to set whether Super G3 is disabled or not in the last call-out of recall in case of a send error.

When, however, the number of recall in case of a send error is 0, this function does not operate.

Default: 0 (Super G3 disabled)

SW52 No.5 Error process in RTN reception

Used to set whether RTN reception is judged as an error or not. (Only in G3 mode)

When set to 1, RTN reception is not judged as an error.

When set to 0, RTN reception is judged as an error.

Default: 0 (Error)

SW52 No.6, No.7 Inhibited to use

SW52 No.8 V.34 control channel communication speed

Used to set control channel communication speed in V.34 mode.

If the remote machine does not make 2400bps enable, the speed is always 1200bps.

Default: 0 (1200bps)

SW53 No.1–No.4 Maximum DTMF send level

Used to set the max. send level of DTMF signal.

Setting is made in binary input in the increment of 1.0dBm.

Default: 0dBm

SW53 No.5–No.8 DTMF send level (difference between high and low level)

Used to set DTMF signal send level in low group by the difference from that in high group.

Setting is made in binary input in the increment of 0.5dBm.

Default: +2.0dBm

SW54 No.1–No.4 Scan effective image area sub scan lead edge image loss (SPF)

Used to set image loss in scan image area.

Image loss on the lead edge in SPF sub scan direction can be adjusted. When the set value is increased, image loss on the lead edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 96 lines

SW54 No.5–No.8 Scan effective image area sub scan rear edge image loss (SPF)

Used to set image loss in scan image area.

Image loss on the rear edge in SPF sub scan direction can be adjusted. When the set value is increased, image loss on the rear edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 144 lines

SW55 No.1–No.7 CI signal OFF detection enable time

Used to set the min. OFF time for judgment of 1 pulse (1 call) of CI (call-in signal).

If OFF time continues more than the set value, it is judged as 1 pulse.

Setting is made in binary input in the increment of 10ms.

Default: 1200ms

SW55 No.8 Inhibited to use

SW56 No.1–No.3 CI signal ON detection enable time

Used to set the min. ON time for judgment of 1 pulse (1 call) of CI (call-in signal).

If ON time continues more than the set value, it is judged as 1 pulse.

Setting is made in binary input in the increment of 10ms.

Default: 155ms

SW56 No.4 Inhibited to use

SW56 No.5, No.6 DT/BT detection frequency range

Used to set DT/BT detection frequency range.

Default: 0 1 (420Hz–680Hz)

SW56 No.7, No.8 Inhibited to use

SW57 No.1 Inhibited to use

SW57 No.2 Sharp machine mode

Used to set whether communication is made in Sharp machine mode or not.

Default: 1 (ON)

SW57 No.3 Inhibited to use

SW57 No.4–No.8 Reception gain adjustment

Used to set reception gain correction.

Setting is made in binary input in the increment of 0.5dBm.

Default: 0.0dBm

SW58 No.1–No.4 Dual wait inhibit time after CFR send

Used to set dual wait inhibit time after CFR send.

Setting is made in binary input in the increment of 200ms.

Default: 1600ms

SW58 No.5–No.8 FSK signal settlement time in double wait

Used to set FSK signal settlement time in double (dual) wait.

Setting is made in binary input in the increment of 50ms.

Default: 550ms (7)

SW59 No.1, No.2 Inhibited to use

SW59 No.3, No.4 Reception SED ON level

Used to set reception SED ON level.

Default: 1 1 (–48dB)

SW59 No.5, No.6 Transmission cable amplitude equalizer

Used to set transmission cable amplitude equalizer.

Default: 0 0 (0dB)

SW59 No.7, No.8 Reception cable amplitude equalizer

Used to set reception cable amplitude equalizer.

Default: 0 0 (0dB)

SW60 No.1–No.4 Scan effective image area sub scan lead edge image loss (SPF back surface)

Used to set image loss in scan image area.

Image loss on the lead edge in SPF bask surface sub scan direction can be adjusted. When the set value is increased, image loss on the lead edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 96 lines

SW60 No.5–No.8 Scan effective image area sub scan rear edge image loss (SPF back surface)

Used to set image loss in scan image area.

Image loss on the rear edge in SPF bask surface sub scan direction can be adjusted. When the set value is increased, image loss on the rear edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 144 lines

SW61 No.1–No.8 Inhibited to use

SW62 No.1 Inhibited to use

SW62 No.2 CI signal ON time in V.8 mode

Used to set CI signal ON time in CI signal send in V8 mode.

Default: 0 (9byte (240ms))

SW62 No.3 CI signal OFF time in V.8 mode

Used to set CI signal OFF time in CI signal send in V8 mode.

Default: 0 (1sec)

SW62 No.4, No.5 V.8 mode ANSam signal send time

Used to set ANSam/CED signal send time.

Default: 0 1 (4sec)

SW62 No.6–No.8 Inhibited to use

SW63 No.1, No.2 CI receive number to shift to non-V.34 communication

Used to set CI receive number to shift to non-V.34 communication.

Default: 1 0 (2 times)

SW63 No.3–No.5 CI send number to shift to non-V.34 communication

Used to set CI send number to shift to non-V.34 communication.

Setting is made in binary input.

Default: 2

SW63 No.6–No.8 Inhibited to use

SW64 No.1–No.8 Inhibited to use

SW65 No.1–No.8 Inhibited to use

SW66 No.1–No.8 Inhibited to use

SW67 No.1–No.4 Make time (10PPS) setup

Used to set make time in dialing in 10PPS.

Setting is made in binary input in the increment of 1ms.

Default: 40ms

SW67 No.5–No.8 Inhibited to use

SW68 No.1, No.2 Line open delay time in dial test

Used to set time interval between end of dialing and opening the line. Valid only in dial test of simulation.

Default: 0 0 (2sec)

SW68 No.3, No.4 Inhibited to use

SW68 No.5–No.8 T1 timer setup

Used to set time for connection of the line when the remote machine does not respond in FAX communication.

The time of ITU-T standard is 35 ± 5sec.

Setting is made in binary input in the increment of 5sec.

Default: 40sec

SW69 No.1–No.8 Inhibited to use

SW70 No.1–No.3 Inhibited to use

SW70 No.4 Reception waiting time between frames

Used to set reception wait time between frames.

Default: 0 (3.4sec)

SW70 No.5, No.6 Preamble send time of 300bps

Used to set preamble send time of 300bps.

Default: 0 1 (1.0sec)

SW70 No.7, No.8 RCP send times

Used to set number of times of RCP frame send.

Default: 0 0 (3 times)

SW71 No.1–No.8 Inhibited to use

SW72 No.1 EYE-Q check

Used to set TCF check in TCF reception.

When set to 1, check is made only with EYE-Q value (EQM value). Therefore, TCF check is loosely made.

When set to 0, check is made with received data and EYE-Q value (EQM value).

Default: 0 (0 reception & EYE-Q check)

SW72 No.2 ERR frame reception operation

Used to set operations when an image with an error frame is received.

Default: 0 (Not continue process. (Error))

SW72 No.3, No.4 Waiting time for CED/ANSam send start

Used to set waiting time from when the line is connected and the machine enters FAX receive state to when CED/ANSam signal is send to the line.

Default: 0 0 (2.25sec)

SW72 No.5 RTC EOL send times

Used to set number of times of RTC EOL send.

Default: 1 (6 times)

SW72 No.6 Inhibited to use

SW72 No.7, No.8 CNG send start

Used to set CNG send time.

Default: 0 0 (0.5sec)

SW73 No.1, No.2 Minimum flags between frames

Used to set minimum flag number between frames.

Default: 0 0 (2-flag)

SW73 No.3, No.4 Phase C head dummy data send time

Used to set phase C head dummy data send time.

Default: 0 0 (0.2sec)

SW73 No.5, No.6 Inhibited to use

SW73 No.7, No.8 Flag-adrs timer setup (V.21-FSK)

Used to set timer between Flag-adrs in FSK signal receive in communication other than V.34 mode.

FSK signal receive in V.34 mode does not conform to this soft switch.

Default: 0 0 (6sec)

SW74 No.1–No.4 Print effective image area sub scan lead edge void

Used to set print image area void.

The void amount on the lead edge in the sub scan direction can be adjusted. When the set value is increased, the void amount on the lead edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 32 lines

SW74 No.5–No.8 Inhibited to use

SW75 No.1, No.2 Inhibited to use

SW75 No.3, No.4 Communication end sound (Buzzer sound length) setting

Used to set the length of communication end buzzer sound in communication.

Default: 0 0 (3sec)

SW75 No.5–No.8 Print effective image area main scan void

Used to set void amount in print image area.

The void amount in the main scan direction can be adjusted. When the set value is increased, the margins on the right and the left are increased.

Setting is made in binary input in the increment of 16 dots.

Default: 48 dots

SW76 No.1–No.8 Scan magnification ratio adjustment (SPF main scan)

Used to set main scan magnification ratio in SPF scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW77 No.1–No.8 Scan magnification ratio adjustment (SPF sub scan)

Used to set sub scan magnification ratio in SPF scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW78 No.1–No.8 Print magnification ration adjustment (main scan)

Used to set main scan magnification ratio in print.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW79 No.1–No.8 Print magnification ration adjustment (sub scan)

Used to set sub scan magnification ratio in print.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW80 No.1–No.8 Destination information

Used to set country code.

Default: North America

SW81 No.1–No.8 Language information

Used to set language.

Default: American English

SW82 No.1–No.4 OC scan size default setting

Used to set OC scan default size.

Default: 0 0 0 1 (LETTER)

SW82 No.5–No.8 Inhibited to use

SW83 No.1, No.2 Inhibited to use

SW83 No.3–No.8 Speaker sound volume setting pattern number

Used to set sound volume pattern of communication end and scan end.

Default: 1

SW84 No.1–No.8 Inhibited to use

SW85 No.1–No.8 Inhibited to use

SW86 No.1–No.8 Inhibited to use

SW87 No.1–No.8 Inhibited to use

SW88 No.1–No.8 Inhibited to use

SW89 No.1–No.8 Inhibited to use

SW90 No.1–No.8 Inhibited to use

SW91 No.1 Symbol speed 3429 send enable in V.34 send

Used to set whether symbol speed of 3429Hz is allowed or not in V.34 send.

Default: 1 (Enable)

SW91 No.2 Symbol speed 3200 high carrier send enable in V.34 send

Used to set whether use of high carrier is allowed or not when symbol speed of 3200Hz is selected in V.34 send.

When high/low carriers are "disable", 3200Hz cannot be selected.

Default: 1 (Enable)

SW91 No.3 Symbol speed 3200 low carrier send enable in V.34 send

Used to set whether use of low carrier is allowed or not when symbol speed of 3200Hz is selected in V.34 send.

When high/low carriers are "disable", 3200Hz cannot be selected.

Default: 1 (Enable)

SW91 No.4 Symbol speed 3000 high carrier send enable in V.34 send

Used to set whether use of high carrier is allowed or not when symbol speed of 3000Hz is selected in V.34 send.

When high/low carriers are "disable", 3200Hz cannot be selected.

Default: 1 (Enable)

SW91 No.5 Symbol speed 3000 low carrier send enable in V.34 send

Used to set whether use of low carrier is allowed or not when symbol speed of 3000Hz is selected in V.34 send.

When high/low carriers are "disable", 3200Hz cannot be selected.

Default: 1 (Enable)

SW91 No.6 Symbol speed 3429 enable in V.34 send

Used to set whether use of 3429Hz is allowed or not as symbol speed in V.34 send.

Default: 1 (Enable)

SW91 No.7 Symbol speed 2800 enable in V.34 send

Used to set whether use of 2800Hz is allowed or not as symbol speed in V.34 send.

Default: 1 (Enable)

SW91 No.8 Symbol speed 2743 enable in V.34 send

Used to set whether use of 2743Hz is allowed or not as symbol speed in V.34 send.

Default: 1 (Enable)

SW92 No.1–No.8 Inhibited to use

SW93 No.1–No.8 Inhibited to use

SW94 No.1–No.8 Inhibited to use

SW95 No.1–No.8 Inhibited to use

SW96 No.1–No.8 Inhibited to use

SW97 No.1–No.8 Inhibited to use

SW98 No.1–No.8 Inhibited to use

SW99 No.1–No.8 Inhibited to use

SW100 No.1–No.8 Inhibited to use

SW101 No.1–No.4 Print effective image area sub scan lead edge void (Back surface)

Used to set void amount in print image area.

Void amount on the lead edge in sub scan direction can be adjusted. When the set value is increased, the margin on the lead edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 32 lines

SW101 No.5–No.8 Print effective image area sub scan rear edge void (Back surface)

Void amount on the rear edge in sub scan direction can be adjusted. When the set value is increased, the margin on the read edge is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 48 lines

SW102 No.1–No.4 Scan effective image area main scan left edge image loss (OC)

Used to set image loss in scan image area.

Image loss on the left edge in OC main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW102 No.5–No.8 Scan effective image area main scan right edge image loss (OC)

Used to set image loss in scan image area.

Image loss on the right edge in OC main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW103 No.1–No.4 Scan effective image area sub scan lead edge image loss (OC)

Used to set image loss in scan image area.

Image loss on the lead edge in OC sub scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 96 lines

SW103 No.5–No.8 Scan effective image area sub scan rear edge image loss (OC)

Used to set image loss in scan image area.

Image loss on the rear edge in OC sub scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 16 lines.

Default: 144 lines

SW104 No.1–No.4 Scan effective image area main scan left edge image loss (SPF back surface)

Used to set image loss in scan image area.

Image loss in SPF back surface main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW104 No.5–No.8 Scan effective image area main scan right edge image loss (SPF back surface)

Used to set image loss in scan image area.

Image loss on the right edge in SPF back surface main scan direction can be adjusted. When the set value is increased, image loss is increased.

Setting is made in binary input in the increment of 24 dots.

Default: 96 dots

SW105 No.1–No.8 Scan magnification ratio adjustment (OC main scan)

Used to set the main san magnification ratio in OC main scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW106 No.1–No.8 Scan magnification ratio adjustment (OC sub scan)

Used to set the sub scan magnification ratio in OC sub scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW107 No.1–No.8 Scan magnification ratio adjustment (SPF back surface main scan)

Used to set the main scan magnification ratio in SPF back surface scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW108 No.1–No.8 Scan magnification ratio adjustment (SPF back surface sub scan)

Used to set the sub scan magnification ratio in SPF back surface scan.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW109 No.1–No.8 Print magnification ratio adjustment (Main scan back surface)

Used to set the main scan magnification ratio in back surface print.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

SW110 No.1–No.8 Print magnification ratio adjustment (Sub scan back surface)

Used to set the sub scan magnification ratio in back surface print.

Setting is made in binary input in the increment of 0.1%.

Default: 0%

8. Trouble codes

A. Trouble codes list

Main code	Sub code	Details of trouble
E1	00	IMC communication trouble
	10	IMC trouble
	13	IMC flash ROM error
	16	IMC DIMM memory read/write check error
	81	IMC communication interface error (parity)
	82	IMC communication interface error (Overrun)
	84	IMC communication interface error (Framing)
E7	02	LSU trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	16	Abnormal laser output
F2	04	Improper cartridge (Destination error, life cycle error)
F5	02	Copy lamp lighting abnormality
F6	10	FAX board trouble
H2	00	Thermistor open
H3	00	Heat roller high temperature detection
H4	00	Heat roller low temperature detection
L1	00	Feeding is not completed within the specified time after starting feeding. (The scan head locking switch is locked)
L3	00	Scanner return trouble
L4	01	Main motor lock detection
L6	10	Polygon motor lock detection
U1	03	FAX board battery error
U2	04	EEPROM read/write error (Serial communication error)
	11	Counter check sum error (EEPROM)
	40	CRUM chip communication error
U9	99	Operation panel language error

B. Details of trouble codes

Main code	Sub code		Details of trouble
E1	00	Content	IMC communication trouble
		Detail	An abnormality occurs in communication between the CPU and the IMC.
		Cause	IMC – CPU signal line abnormality IMC Memory defect/data abnormality
		Check and remedy	Replace the MCU PWB with new one.
	10	Content	IMC trouble
		Detail	An abnormality occurs in the IMC.
		Cause	USB chip error/CODEC error on the IMC.
		Check and remedy	Replace the MCU PWB with a new one.
	13	Content	IMC flash ROM error
		Detail	An abnormality occurs in the IMC flash ROM.
		Cause	IMC abnormality
		Check and remedy	Replace the MCU PWB with a new one. If downloading of the program is abnormally terminated, it may cause an error. Download the program again to avoid this.

Main code	Sub code	Details of trouble	
E1	16	Content	IMC DIMM memory read/write check error
		Detail	An installation error occurs in the IMC memory module. An error occurs during access to the IMC memory.
		Cause	Improper installation of the IMC memory module. IMC memory module abnormality IMC memory contact abnormality IMC abnormality.
		Check and remedy	Check installation of the memory module. Replace the memory module. Replace the MCU PWB with a new one.
	81	Content	IMC communication interface error (parity)
		Detail	A parity error occurs in communication between the CPU and the IMC.
		Cause	IMC memory defect/data abnormality
		Check and remedy	Check the memory of the IMC. Replace the MCU PWB with new one.
	82	Content	IMC communication interface error (Overrun)
		Detail	An overrun error occurs in communication between the CPU and the IMC.
		Cause	IMC memory defect/data abnormality.
		Check and remedy	Check the memory of the IMC. Replace the MCU PWB with new one.
	84	Content	IMC communication interface error (Framing)
		Detail	A framing error occurs in communication between the CPU and the IMC.
		Cause	IMC memory defect/data abnormality.
		Check and remedy	Check the memory of the IMC.
E7	02	Content	LSU trouble
		Detail	The BD signal from the LSU cannot be detected in a certain cycle. (Always OFF or always ON)
		Cause	LSU connector or LSU harness defect or disconnection Polygon motor rotation abnormality Laser beams are not generated. MCU PWB abnormality.
		Check and remedy	Check connection of the LSU connector. Execute TC 61-03 to check the LSU operations. Check that the polygon motor rotates normally. Check that the laser emitting diode generates laser beams. Replace the LSU unit. Replace the MCU PWB.
	10	Content	Shading trouble (Black correction)
		Detail	The CCD black scan level is abnormal when the shading.
		Cause	Improper connection of the CCD unit flat cable CCD unit abnormality MCU PWB abnormality
		Check and remedy	Check connection of the CCD unit flat cable. Check the CCD unit.

Main code	Sub code	Details of trouble	
E7	11	Content	Shading trouble (White correction)
		Detail	The CCD white scan level is abnormal when the shading.
		Cause	Improper connection of the CCD unit flat cable Dirt on the mirror, the lens, and the reference white plate Copy lamp lighting abnormality CCD unit abnormality MCU PWB abnormality (When occurred in the SPF scan position.) Improper installation of the mirror unit
		Check and remedy	Clean the mirror, lens, and the reference white plate. Check the light quantity and lighting status of the copy lamp (TC 05-03). Check the MCU PWB.
	16	Content	Abnormal laser output
		Detail	When the laser output is stopped, HSYNC is detected.
		Cause	Laser abnormality MCU PWB abnormality.
		Check and remedy	Check the laser emitting diode operation. Replace the MCU PWB.
F2	04	Content	Improper cartridge (Destination error, life cycle error)
		Detail	The destination of the main unit differs from that of the CRUM. The life cycle information is other than "FFh" (Not used).
		Cause	CRUM chip trouble Improper developing unit
		Check and remedy	Replace the CRUM chip. Replace the developing unit.
F5	02	Content	Copy lamp lighting abnormality
		Detail	The copy lamp does not turn on.
		Cause	Copy lamp abnormality Copy lamp harness abnormality CCD PWB harness abnormality.
		Check and remedy	Use TC 5-3 to check the copy lamp operations. **When the copy lamp lights up.** Check the harness and the connector between the CCD unit and the MCU PWB. **When the copy lamp does not light up.** Check the harness and the connector between the copy lamp unit and the MCU PWB. Replace the copy lamp unit. Replace the MCU PWB.
F6	10	Content	FAX board trouble
		Detail	Communication trouble between MCU and FAX control PWB
		Cause	FAX control PWB connector disconnection Defective harness between FAX control PWB and MCU PWB Motherboard connector pin breakage FAX control PWB ROM error/Data error IC on FAX PWB causes abnormality
		Check and remedy	Check connector/harness of FAX control PWB and MCU PWB. Check the grounding of the copier. Check FAX control PWB ROM. Replace the FAX PWB.

Main code	Sub code	Details of trouble	
H2	00	Content	Thermistor open
		Detail	The thermistor is open. The fusing unit is not installed.
		Cause	Thermistor abnormality Control PWB abnormality Fusing section connector disconnection The fusing unit is not installed.
		Check and remedy	Check the harness and the connector between the thermistor and the PWB. Use TC 14 to clear the self diagnostic display.
H3	00	Content	Heat roller high temperature detection
		Detail	The fusing temperature exceeds 240°C.
		Cause	Thermistor abnormality Control PWB abnormality Fusing section connector disconnection.
		Check and remedy	Use TC 5-02 to check the heater lamp blinking operation. **When the lamp blinks normally.** Check the thermistor and its harness. Check the thermistor input circuit on the control PWB. **When the lamp keeps ON.** Check the power PWB and the lamp control circuit on the MCU PWB. Use TC 14 to clear the self diagnostic display.
H4	00	Content	Heat roller low temperature detection
		Detail	The fusing temperature does not reach 185°C within 27 sec of turning on the power, or the fusing temperature keeps at 140°C.
		Cause	Thermistor abnormality Heater lamp abnormality Thermostat abnormality Control PWB abnormality
		Check and remedy	Use TC 5-02 to check the heater lamp blinking operation. **When the lamp blinks normally.** Check the thermistor and its harness. Check the thermistor input circuit on the control PWB. **When the lamp does not light up.** Check for disconnection of the heater lamp and the thermostat. Check the interlock switch. Check the power PWB and the lamp control circuit on the MCU PWB. Use TC 14 to clear the self diagnostic display.

Main code	Sub code	Details of trouble	
L1	00	Content	Feeding is not completed within the specified time after starting feeding. (The scan head locking switch is locked)
		Detail	The white area and the black marking on the shading plate are used to obtain the difference in the CCD level values for judgment of lock. When the difference in the levels of which and black is small, it is judged that the black mark could not be scanned by lock and the trouble code “L1” is displayed.
		Cause	The scan head is locked by the lock switch. Mirror unit abnormality The scanner wire is disconnected. The origin detection sensor abnormality Mirror motor harness abnormality
		Check and remedy	Check to confirm that the scan head lock switch is released. Use TC 1-1 to check the mirror reciprocating operations. **When the mirror does not feed.** Check for disconnection of the scanner wire. Check the harness and the connector between the mirror motor and the MCU PWB. Replace the mirror unit. Replace the MCU PWB. **When the mirror does feed.** Use TC 1-2 to check the mirror home position sensor.
L3	00	Content	Scanner return trouble
		Detail	When the mirror base is returned for the specified time (6 sec) in mirror initializing after turning on the power, the mirror home position sensor (MHPS) does not turn ON. Or when the mirror base is returned for the specified time (about 6 sec) after start of copy return, the mirror home position sensor (MHPS) does not turn ON.
		Cause	Mirror unit abnormality Scanner wire disconnection Origin detection sensor abnormality Mirror motor harness abnormality
		Check and remedy	Use TC 1-1 to check the mirror reciprocating operations. **When the mirror does not return.** Check for disconnection of the scanner wire. Check the harness and the connector between the mirror motor and the MCU PWB. Replace the mirror unit. Replace the MCU PWB. **When the mirror does feed.** Use TC 1-2 to check the mirror home position sensor.
L4	01	Content	Main motor lock detection
		Detail	When the main motor encoder pulse is not detected for 100 msec.
		Cause	Main motor unit abnormality Improper connection or disconnection the main motor and the harness. MCU PWB abnormality
		Check and remedy	Use TC 25-01 to check the main motor operations. Check connection of the main motor harness/ connector. Replace the main motor. Replace the MCU PWB.

Main code	Sub code	Details of trouble	
L6	10	Content	Polygon motor lock detection
		Detail	The lock signal (specified rpm signal) does not return within a certain time (about 20 sec) from starting the polygon motor rotation.
		Cause	Polygon motor unit abnormality Improper connection or disconnection of the polygon motor and the harness. MCU PWB abnormality
		Check and remedy	Use TC 61-1 to check the polygon motor operations. Check connection of the polygon motor harness/connector. Replace the polygon motor. Replace the MCU PWB.
U1	03	Content	FAX board battery error
		Details	The SRAM backup battery voltage on FAX PWB falls.
		Cause	The SRAM backup battery voltage on FAX PWB falls.
		Check and remedy	Check voltage of the SRAM back up battery. Replace the battery.
U2	04	Content	EEPROM read/write error (Serial communication error)
		Detail	EEPROM access process error
		Cause	EEPROM abnormality
		Check and remedy	Check that the EEPROM is properly set. Use TC 16 to cancel the trouble. Replace the MCU PWB.
	11	Content	Counter check sum error (EEPROM)
		Detail	Check sum error of the counter area in the EEPROM
		Cause	EEPROM abnormality
		Check and remedy	Check that the EEPROM is properly set. Use TC 16 to cancel the trouble. Replace the MCU PWB.
	40	Content	CRUM chip communication error
		Detail	An error occurs in MCU-CRUM chip communication.
		Cause	CRUM chip trouble Defective contact of developing unit MCU PWB trouble
		Check and remedy	Replace the CRUM chip. Check installation of the developing unit. Cancel the operation with TC16. Replace the MCU PWB.
U9	99	Content	Operation panel language error
		Detail	There is no language file. The language file is destroyed.
		Cause	Language file abnormality MCU PWB abnormality
		Check and remedy	MCU firmware download Replace the MCU PWB.

9. Communication error codes

A. Error code identification

Communication error xx (xxxx)

(In print out, the communication error display is made. In FAX status check, “NGxxxxxx” is displayed.

When transmission or reception is not executed normally due to disturbance in protocol signals and image signals by the trouble in the line, the code of 6 digits is displayed on the transmission result check menu (reception result check menu).

Upper 2 digits of a communication error code: 00 – 58 (error code) is displayed. (Communication result code)

Lower 4 digits of a communication error code: Error code1, Error code 2

1) Refer to the communication result code.
2) Refer to error code 1.
3) Refer to error code 2.

(Error code 1 other than V.34 mode is “00”.)

<Communication result code>

Error code (Communication result)	Communication report result column	Communication interruption content
0 – 31	For details of 0 – 31, refer to the communication result code.	Depends on the communication disconnection position. For 16 or later, V.34 mode communication.
33	Busy	The calling side cannot connect the line with the other party.
34	Cancel	An interruption command is made during transmission or reception. A reservation is canceled. An interruption command is entered with the interruption key.
35	Power OFF	Power OFF during transmission or reception
36	(Recording paper empty)	
37	(Recording paper jam)	
38	Reception memory over	Memory over during reception
39	(Discrepancy in the number of sheets)	
40	(Interface not accepted)	
41	Transmission length over	The length of transmission data of one page exceeds the range during transmission.
42	Reception length over	The length of reception data of one page exceeds the range during reception.
43	Communication (OK)	Communication enable before transmission
44	Document error	A document jam during direct transmission
45	(Image quality error)	
46	No response from the other party	The FAX signal from the other party cannot detect within T1 time.

Error code (Communication result)	Communication report result column	Communication interruption content
47	(Communication error)	
48	OK	Communication normal end
49	No send request function on the other party	The other party has no send request function when receiving a send request.
		The other party has no data to send.
50	Send request not accepted	DCN is received for DTC when sending a send request.
		There is no data to send when sending a send request.
51	Send request enable number discrepancy	Discrepancy in the enable number when sending a send request. Discrepancy in the system number when sending a send request.
52	No confidential function on the other party	The other party has no confidential function when sending a confidential message. (Including the other company's machines)
53	Confidential function not accepted	DCN is received for NSS when receiving a confidential message.
54	Confidential box No. NG	A confidential box number which is not registered is directed when receiving a confidential message.
55	No interface function on the other party	The other party has no interface function when sending an interface command.
56	Interface not accepted	DCN is received for NSS when sending an interface command. A receiving station number which is not registered is directed when receiving an interface command.
57	Interface ID discrepancy	Discrepancy in the interface ID when receiving an interface command.
58	Reception inhibition number	Transmission is made from a reception inhibition number.

<Communication result codes>

Error code	Final reception signal (Transmitting side)	Final reception signal (Receiving side)
0	Abnormal signal	Abnormal signal
1	NSF, DIS	NSS, DCS
2	CFR	NSC, DTC
3	FTT	EOP
4	MCF	EOM
5	PIP, PIN	MPS
6	RTN, RTP	PRI-Q
7	No signal	DCN
8	PPR	PPS-EOP
9		PPS-EOM
10		PPS-MPS, PPS-NULL
11	RNR	RR
12	CTR	CTC
13	ERR	EOR-Q
14		PPS-PRI-Q
15		
16	Abnormal signal	Abnormal signal
17	NSF, DIS	NSS, DCS
18	CFR	NSC, DTC
19	FTT	PPS-EOP
20	MCF	PPS-EOM
21	PIP, PIN	PPS-MPS, PPS-NULL
22	RTN, RTP	PRI-Q
23	No signal	DCN
24	PPR	
25	RNR	RR
26	CTR	CTC
27	ERR	EOR-Q
28		PPS-PRI-Q
29	V.8 Phase-1	V.8 Phase-1
30	V.8 Phase-2	V.8 Phase-2
31	V.8 Phase-3	V.8 Phase-3

(Note) For error codes 16 – 31, V.34 mode communication.

<Error codes 1>

Error codes 1 are fixed to "00".

<Error codes 2>

Error codes 2	Content of communication interruption	Transmission/ Reception
01	Transmission length over	Transmission
02	EOL time over	Reception
03	Carrier detection time up	Reception
04	Polarity reversion detection (in phase C)	Transmission/ Reception
05	8 min over (in phase C)	Transmission
06	Memory image decoding error	Reception
07	Memory image decoding error	Transmission
08	Time up between frames in phase C	Transmission/ Reception
10	Communication request NG	Reception
11	Polarity reversion detection	Reception
12	Invalid command reception	Reception
13	Time over (1min timer/6sec timer)	Reception
14	PUT error	Reception
15	Time out occurrence during shift from Primary to Control in V.34 mode	Reception
20	Polarity reversion detection	Transmission
21	Invalid command reception	Transmission
22	Fall back retry number over	Transmission
23	Resend over of retry number	Transmission
24	Time over (T5 timer)	Transmission
25	Time over (T5 timer) in V.34 mode	Transmission
26	Time out occurrence during shift from Primary to Control in V.34 mode	Transmission
30	Communication error due to communication abnormality between FAX_SUB and FAX_MAIN	Transmission/ Reception

[11] MAINTENANCE

1. Maintenance table

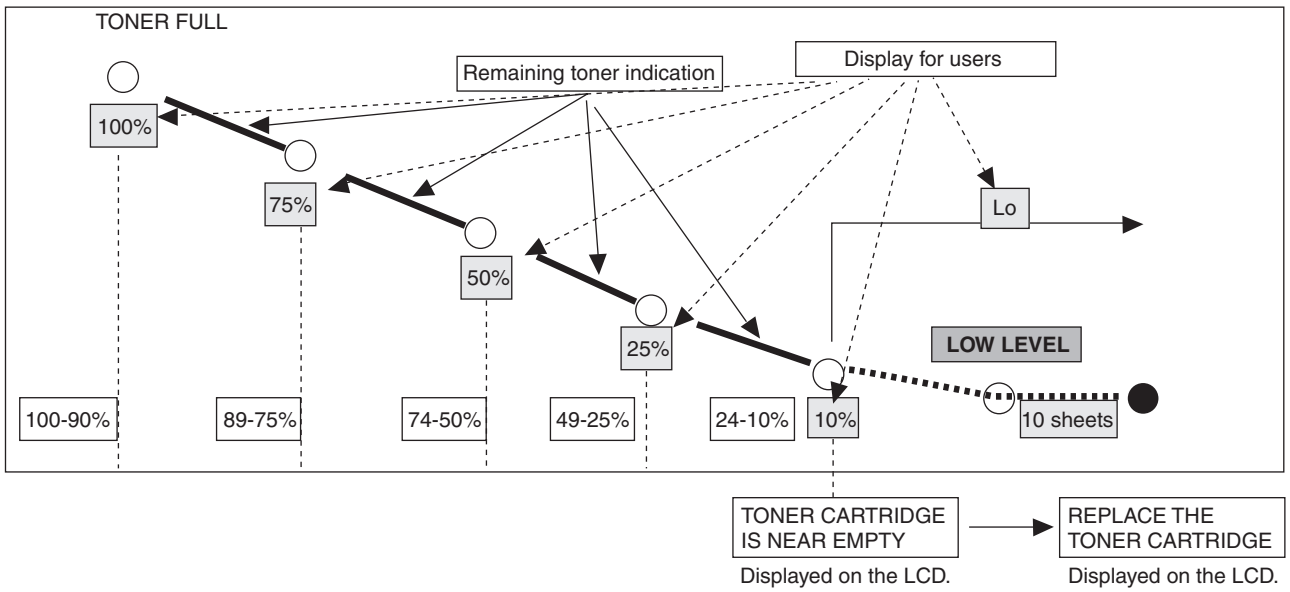
×: Check (Clean, adjust, or replace when required.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

Section	Parts	25K	50K	75K	100K	125K	Remark
Developing	Developer	▲	▲	▲	▲	▲	
	DV blade	○	▲	○	▲	○	
	DV side seal (F/R)	○	▲	○	▲	○	
Process peripheral	Drum	▲	▲	▲	▲	▲	

2. Maintenance display system

Toner	Life	8K	
	Remaining quantity	NEAR EMPTY About 10%	EMPTY
	LED	ON	Flash
	Machine	Operation allowed	Stop
Developer	Life	25K	
	LED	ON at 25K of the developer count.	
	Machine	Selection is available between Not Stop and Stop by Service Simulation (SIM 26-37) Setup. (If Stop is selected, the LED will flash and stop at 25K.) * Default: Not Stop * Clear: SIM 24-06	
Maintenance	LED	Selection is available among 25K, 13K, 9K, 6K, 3K, and free (no lighting) with SIM 21-1. * Default: 25K * Clear: SIM 20-1	
	Machine	Not stop.	

3. Remaining toner indication



- The remaining toner indication is based on the number of revolutions of the toner motor.
- The toner END indication appears when the END is detected by the toner sensor.

[12] USER PROGRAM

The user settings consist of the following items.

1. User programs

A. Copy mode

Program number	Program name	Setting codes (factory default setting appears in bold)	Explanation
1	AUTO CLEAR	1: 10 SEC. 2: 30 SEC. **3: 60 SEC.** 4: 90 SEC. 5: 120 SEC. 6: OFF	• Auto clear time automatically returns the copy settings to the initial settings if no keys are pressed for a preset period of time following the end of a copy job. • This program is used to select the period of time. Auto clear time can also be disabled.
2	PREHEAT MODE	**1: 30 SEC.** 2: 1 MIN. 3: 5 MIN. 4: 30 MIN. 5: 60 MIN. 6: 120 MIN. 7: 240 MIN.	• This function automatically switches the machine to a low power consumption state if the set duration of time elapses without the machine being used when the power is on. The power save indicator lights up, however, the keys on the operation panel can be used. Normal operation automatically resumes when a key on the operation panel is pressed, an original is placed, a print/fax job is received.
3	AUTO SHUT-OFF	**1: ON** 2: OFF	• Use this setting to enable or disable auto power shut-off mode.
4	AUTO SHUT-OFF TIME	**1: 5 MIN.** 2: 30 MIN. 3: 60 MIN. 4: 120 MIN. 5: 240 MIN.	• This function automatically switches the machine to a state that consumes even less power than preheat mode if the set duration of time elapses without the machine being used when the power is on. All lights except the power save indicator go off. To resume normal operation, press the [START] key. Normal operation also resumes automatically when a print/fax job is received or scanning is begun from a computer. While in auto power shut-off mode, no keys (except the [START] key) can be used.
5	STREAM FEEDING	**1: ON** 2: OFF	• When copying using the RSPF, while "SET ORIGINALS FOR STREAM FEEDING." appears in the display after an original has been scanned (about 5 seconds), a subsequent original can be placed and automatically fed into the machine.
6	LAYOUT IN 2IN1	**1: PATTERN 1** 2: PATTERN 2	• Use this setting to select the layout pattern when two original pages are copied onto a single sheet of paper.
7	OFFSET FUNCTION	**1: ON** 2: OFF	• When enabled, this function offsets the position of each set of copies in the output tray in copy mode, and each print job in printer mode.
8	ROTATE ORIG. IMAGE	1: ON **2: OFF**	• When two-sided copying is performed, this function rotates the image on the back of the original. This is convenient when binding the copies at the top (tablet binding).
9	AE/TEXT RESOLUTION	**1: 300dpi** 2: 600dpi	• This setting is used to change the copy resolution in AUTO and TEXT mode from 600 x 300 dpi to 600 x 600 dpi (high-quality mode). Scanning is slower when high-quality mode is used.
10	2-SIDED COPY MODE	**1: HI-SPEED** 2: NORMAL	• If the memory fills up when two-sided copying is performed, "NORMAL" can be selected to make copying possible. However, "NORMAL" results in a slower copying speed. Normally "HI-SPEED" is selected to enable fast two-sided copying.
11	MARGIN WIDTH	1: 1/4" **2: 1/2"** 3: 3/4" 4: 1"	• Use this setting to set the margin width.
12	MEM. FOR PRINTER	1: 30% 2: 40% **3: 50%** 4: 60% 5: 70%	• Use this to change the proportion of machine memory used for printer mode.
13	AUTO KEY REPEAT	**1: ON** 2: OFF	• Use this setting to select whether or not holding down a key causes repeated input of the key. For keys that normally cause a set value to decrease or increase when held down (for example, the [<] key [v] or [>] key [^]), this program can be used to have the set value not change when the key is held down.
14	KEY PRESS TIME	**1: NORMAL** 2: 0.5 SEC. 3: 1.0 SEC. 4: 1.5 SEC. 5: 2.0 SEC.	• Use this setting to select how long a key must be pressed for the input to be accepted. By selecting a longer time, you can prevent settings from being changed by the accidental pressing of a key.

Program number	Program name	Setting codes (factory default setting appears in bold)	Explanation
15	KEY TOUCH SOUND	**1: LOW** 2: HIGH 3: OFF	• This sets the volume of beep signals.
16	SOUND AT DEFAULT	1: ON **2: OFF**	• Use this to sound a beep when a base setting is selected.
17	TONER SAVE MODE	1: ON **2: OFF**	• This mode reduces toner usage by about 10% when copying. Toner save mode is effective when the exposure mode is AUTO or TEXT.
18	AE LEVEL ADJUST	1: SPF/RSPF 2: DOCUMENT GLASS	• This is used to adjust the exposure level. • The automatic exposure level can be adjusted separately for the document glass and the RSPF. • The factory default setting for the exposure level is center.
19	LANGUAGE	**1: AMERICAN ENGLISH** 2: FRENCH 3: SPANISH	• This is used to set the language used in the display.
20	RESET FACTORY	1: YES **2: NO**	• This is used to return all settings to the factory default settings.
21	SORT AUTO SELECT	**1: ON** 2: OFF	• Use this setting to enable or disable sort auto select mode.

B. Print mode

Program number	Program name	Setting codes (factory default setting appears in bold)	Explanation
1	FORCED OUTPUT	1: ON **2: OFF**	When this function is enabled, printing in printer mode will automatically continue using a different size of paper if the specified size of paper runs out in all trays. This feature does not function in copy mode.
2	USB 2.0 MODE SWITCH *1	**1: FULL-SPEED** 2: HI-SPEED	This sets the USB 2.0 data transfer speed. To obtain the fastest speed when using the USB 2.0 connector, first verify that your computer meets the system requirements (operating system and driver), and then use this program to change the USB 2.0 mode to "Hi-Speed". Note that the setting should not be changed while running a TWAIN driver. (For the system requirements.)
3	AUTO TRAY SWITCH *2	**1: ON** 2: OFF	If the paper runs out during printing and there is paper of the same size in another tray, this function automatically switches to that tray (excluding the bypass tray). The function can be disabled.

*1: The scanning speed increases when the USB 2.0 mode is set to "HI-SPEED", however, the printing speed does not increase considerably.

*2: When the 250-sheet paper feed unit is installed.

C. FAX mode

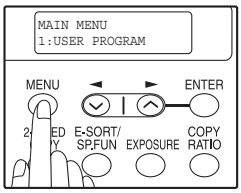
Program number	Program name	Setting codes (factory default setting appears in bold)	Explanation
1	DOC. GLASS SIZE	**1: 8.5x11** 2: 8.5x14 3: A4	Set the size of an original faxed from the document glass.
2	FIXED DOC. SIZE	**1: 8.5x11** 2: 8.5x14 3: A4	Set the default size of originals faxed from the document glass.
3	RESO. PRIORITY	**1: STANDARD** 2: FINE 3: SUPER FINE	Set the default resolution for fax transmission.
4	# OF RINGS (AUTO)	0 – 9 (**2**)	Set the number of rings on which the machine answers calls in automatic reception mode.
5	# OF RINGS (MANUAL)	0 – 9 (**0**)	Set the number of rings on which the machine answers calls in manual reception mode.
6	AUTO LISTING	1: ON **2: OFF**	Enable automatic printing of the Activity Report when information on a total of 50 fax transmissions/receptions accumulates.
7	PRINT SELECTION	1: ALWAYS PRINTS **2: ERROR ONLY** 3: NEVER PRINTS	1: TRANSMISSION Select the condition for printing reports on fax transmissions.
		1: ALWAYS PRINTS 2: ERROR ONLY 3: NEVER PRINTS	2: BROADCAST Select the condition for printing reports on broadcast transmissions.

Program number	Program name	Setting codes (factory default setting appears in bold)	Explanation
7	PRINT SELECTION	1: ALWAYS PRINTS 2: ERROR ONLY **3: NEVER PRINTS**	3: RECEPTION Select the condition for printing reports on received faxes.
		1: ALWAYS PRINTS **2: ERROR ONLY** 3: NEVER PRINTS	4: IMAGE MEM. PRINT Enable printing of the original image on transaction reports.
8	RECALL TIMES BUSY	00 – 14 (**02**)	Set the number of recall attempts that are made when the line is busy.
9	RECALL TIMES ERR	0 – 1 (**1**)	Set the number of recall attempts that are made when a communication error occurs.
10	RECALL INT. BUSY	01 – 15 min. (**03 min.**)	Set the interval between recall attempts when the line is busy. 1 to 15 minutes can be selected.
11	RECALL INT. ERR	00 – 15 min. (**01 min.**)	Set the interval between recall attempts when a communication error occurs. 0 to 15 minutes can be selected.
12	SECURITY SELECT	**1: ON** 2: OFF	Enable the polling security function.
13	FAX REMOTE NUMBER	0 – 9 (**5**)	Set the 1-digit number used to activate remote fax reception.
14	REMOTE RECEPTION	**1: ON** 2: OFF	Enable the remote reception function.
15	FAX SIGNAL RCV	**1: ON** 2: OFF	Enable automatic fax reception when a fax tone is heard after answering a call on an extension phone.
16	RCV REDUCE	**1: ON** 2: OFF	When a fax is received that is larger that the printing paper, enable reduction of the fax to the size of the paper to avoid the fax being cut off.
17	BEEP LENGTH	**1: 3 SEC** 2: 1 SEC 3: NO BEEP	Set the length of the beep that sounds when fax transmission or reception ends.
18	RINGER VOLUME	1: OFF 2: LOW **3: MIDDLE** 4: HIGH	Set the volume of the ringer.
19	BEEPER VOLUME	1: OFF **2: LOW** 3: MIDDLE 4: HIGH	Set the volume of the beep that sounds when a key is pressed.
20	DIAL MODE	**1: TONE** 2: PULSE	Set the dial mode for the type of line you are on.
21	DISTINCTIVE RING	**1: OFF** 2: STANDARD 3: PATTERN 1 4: PATTERN 2 5: PATTERN 3 6: PATTERN 4 7: PATTERN 5	Set the ring pattern for distinctive ring.
22	INDEX PRINT	1: ON **2: OFF**	Enable printing of a black mark (index) at the top of each received fax page.
23	DATE&TIME FORMAT	**1: 12 HOUR** 2: 24 HOUR	1: TIME FORMAT Select 12-hour or 24-hour format for the time set in the machine.
		1: MMDDYYYY 2: DDMMYYYY 3: YYYYMMDD	2: DATE FORMAT Set the format of the date in the display and in printouts.
24	PRINT HOLD MODE	1: ON **2: OFF**	When this mode is enabled, received faxes are held in the memory of the machine instead of being printed out. To print received faxes, the passcode that was programmed using "25: PRINT PASSCODE" must be entered. This mode is used to ensure that received faxes are not misplaced or taken from the paper output tray by another person.
25	PRINT PASSCODE	1: SET 2: CLEAR	This setting is used to program the passcode that is required when "24: PRINT HOLD MODE" is enabled.
26	2-SIDED RX	1: ON **2: OFF**	Print on both sides of the paper when a multi-page fax is received.
27	TRAY SELECTION (When the 250-sheet paper feed unit is installed.)	**1: AUTO** 2: TRAY 1 3: TRAY 2	Set the tray for printing received faxes.

2. Selecting a setting for a user program

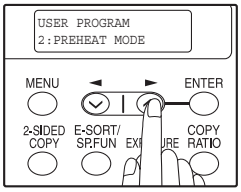
1) Press the [MENU] key and then press the [ENTER] key.

   In printer mode, the user programs are accessed by simply pressing the [MENU] key.

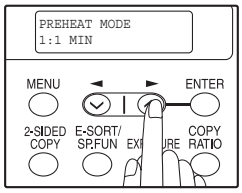


2) Press the [<] key [v] or [>] key [^] to select the item that you wish to configure in the USER PROGRAM items, and then press the [ENTER] key.

   - You can also select a program by directly entering the program number with the numeric keys.



3) Press the [<] key [v] or [>] key [^] to change the setting of the selected item.



NOTE:

- If you mistakenly select the wrong item, press the [CLEAR] key [C] and repeat the procedure from step 2.
- To cancel a setting for a user program, press the [MENU] key.

4) Press the [ENTER] key.

   Your selection appears briefly and then the previous screen appears.

NOTE:

When "AE LEVEL ADJUST" is selected in the user programs and the [ENTER] key is pressed, the automatic exposure adjustment screen appears. Adjust the exposure and press the [ENTER] key.

Audible signals (key entry beep, invalid key beep, base setting beep)

The machine sounds three different types of beep signals: a key entry beep that sounds when a valid key is pressed, an invalid key beep that sounds when an invalid key is pressed, and a base setting beep that sounds when a setting is the same as the base setting (base settings are explained below). The base setting beep is initially disabled. If you wish to enable the base setting beep, see "SOUND AT DEFAULT". If you wish to change the volume of the beep signals or disable them, see "KEY TOUCH SOUND".

The beep patterns of each type of beep signal are as follows:

Key entry beep: One beep
Base setting beep: Three beeps
Invalid key beep: Two beeps

Base settings

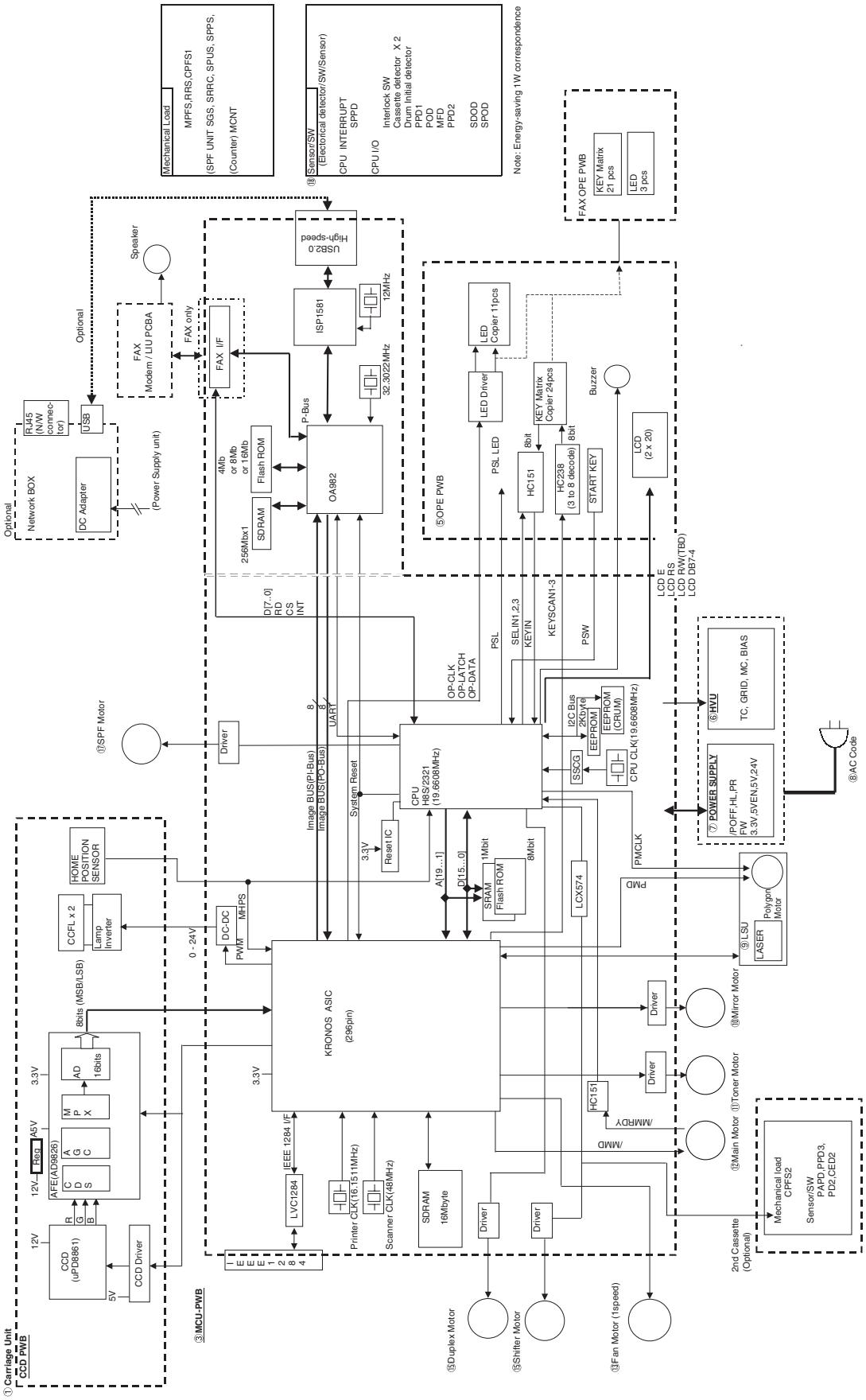
The base settings are preset standard selections for each copy setting. The base settings are as follows:

Copy ratio: 100%
Paper feed location:
Light and Dark level: Center
Tray 1 (Upper paper tray)
AUTO/TEXT/PHOTO: AUTO

[13] ELECTRICAL SECTION

1. Block diagram

A. Overall block diagram



2. Circuit descriptions

A. Main PWB (MCU)

(1) General

The MCU PWB is composed of:

- CPU peripheral section which performs mechanical sequence control, U/I, and each function job management.
  The CPU connects with the ASIC and memory by use of the system bus and performs jog management and sequence control of the whole engine.
- Image process ASIC which performs image process, CCD control, LSU control, and print control.
- OA982 peripheral section which performs E-Sort and FAX control.
  The OA982 performs image data input/output with the ASIC, SDRAM memory management, and communication with USB2.0 devices.
- I/F section for USB2.0 and IEEE1284 control. (For the AL series, IEEE1284 is not available.)
- Motor control circuit
- Mechanical load, sensor I/O circuit

It performs control and management of the process, the transport loads, the fusing, the optical, and the operation panel sections for executing a series of copy/print/scan operations.

(2) CPU signal table (H8S/2321)

PIN No.	Signal code	Input/ Output	Operating
1	/CS1	Output	SRAM chip select
2	/CS0	Output	Flash ROM chip select
3	GND		DGND
4	GND		DGND
5	Vcc		CPU3.3V
6	A0	Output	Address bus
7	A1	Output	Address bus
8	A2	Output	Address bus
9	A3	Output	Address bus
10	GND		DGND
11	A4	Output	Address bus
12	A5	Output	Address bus
13	A6	Output	Address bus
14	A7	Output	Address bus
15	A8	Output	Address bus
16	A9	Output	Address bus
17	A10	Output	Address bus
18	A11	Output	Address bus
19	GND		DGND
20	A12	Output	Address bus
21	A13	Output	Address bus
22	A14	Output	Address bus
23	A15	Output	Address bus
24	A16	Output	Address bus
25	A17	Output	Address bus
26	A18	Output	Address bus
27	A19	Output	Address bus
28	GND		DGND
29	A20		Pull-Up
30	PSW	Interruption level input	Print SW
31	SPPD	Interruption level input	SPF paper sensor
32	CCD_TG	Interruption level input	CCD horizontal sync signal
33	MHPS	Interruption level input	Mirror Home Position
34	/CPUSYNC	Interruption level input	Horizontal sync (ASIC)
35	GND		DGND
36	GND		DGND
37	FW	Interruption level input	Zero cross signal
38	ARB_INT	Interruption level input	ASIC interruption
39	Vcc		CPU3.3V
40	D0	Data I/O	Data bus
41	D1	Data I/O	Data bus
42	D2	Data I/O	Data bus
43	D3	Data I/O	Data bus
44	GND		DGND
45	D4	Data I/O	Data bus
46	D5	Data I/O	Data bus
47	D6	Data I/O	Data bus
48	D7	Data I/O	Data bus
49	D8	Data I/O	Data bus
50	D9	Data I/O	Data bus
51	D10	Data I/O	Data bus
52	D11	Data I/O	Data bus
53	GND		DGND
54	D12	Data I/O	Data bus
55	D13	Data I/O	Data bus
56	D14	Data I/O	Data bus
57	D15	Data I/O	Data bus
58	Vcc		CPU3.3V
59	POFF	Output	Shut off control
60	TxD1	Output	For debug
61	SDA	Output	EEPROM Data bus
62	SCL	Output	EEPROM clock
63	LCDRS	Output	LCD control
64	LCDE	Output	LCD control
65	GND		DGND
66	CS4 (FAX)		Chip select (FAX)
67	GND		DGND
68	GND		DGND
69	RY/BY	Input	Flash Busy signal
70	LCDDB4	Output	LCD control
71	LCDDB5	Output	LCD control
72	BZR	Output	Buzzer signal
73	LCDDB7	Output	LCD control
74	LCDDB6	Output	LCD control
75	Reset OUT1	Output	Reset signal
76	DMT0	Output	Duplex Motor signal
77	DMT1	Output	Duplex Motor signal
78	DMT2	Output	Duplex Motor signal
79	DMT3	Output	Duplex Motor signal
80	WDTOVF	Output	NC Pull-Up
81	/RES	Input	Reset
82	NMI	Output	NC Pull-Up
83	STBY	Output	NC Pull-Up
84	Vcc		CPU3.3V
85	XTAL	Input	Clock
86	EXTAL	Output	Clock
87	GND		DGND
88	CPUCLK	Output	NC
89	Vcc		CPU3.3V
90	PRINTST	Output	Print start signal
91	/RD	Output	Read signal
92	/HWR	Output	Write signal (High address)
93	/LWR	Output	Write signal (Low address)
94	SELIN3	Output	HC151 select signal
95	SELIN2	Output	HC151 select signal
96	SELIN1	Output	HC151 select signal
97	ESSTS	Output	E-sort control
98	ESCMD	Input	E-sort control
99	GND		DGND
100	GND		DGND
101	ESSRDY	Input	E-sort control
102	ESCRDY	Output	E-sort control
103	AVcc		CPU3.3V
104	Vref		CPU3.3V
105	RTH	Analog input	Fusing thermistor

PIN No.	Signal code	Input/ Output	Operating
106	ESPAGE	Input	E-sort control
107	SIN1	Input	HC151 select detection
108	SIN2	Input	HC151 select detection
109	SIN3	Input	HC151 select detection
110			Pull up
111	KEY IN	Input	NC
112	MSUST1	Input	NC
113	Avss		DGND
114	GND		DGND
115	/SCANSP	Output	Scan STOP signal
116	/SCANST	Output	Scan START signal
117	/TRANSST	Output	ASIC transfer signal
118	PMCLK	Output	Polygon clock
119	SPMT3	Output	SPF motor signal
120	SPMT2	Output	SPF motor signal
121	SPMT1	Output	SPF motor signal
122	SPMT0	Output	SPF motor signal
123	GND		DGND
124	GND		DGND
125	Vcc		CPU3.3V
126	PSL	Output	Power save LED control
127	/CS3	Output	Chip select signal
128	/CS2	Output	ASIC chip select

(3) Image process ASIC (HG73C114HF)

a. General

The ASIC is composed of the three blocks: the image process block, the print control block, and the I/F block.

Image process section

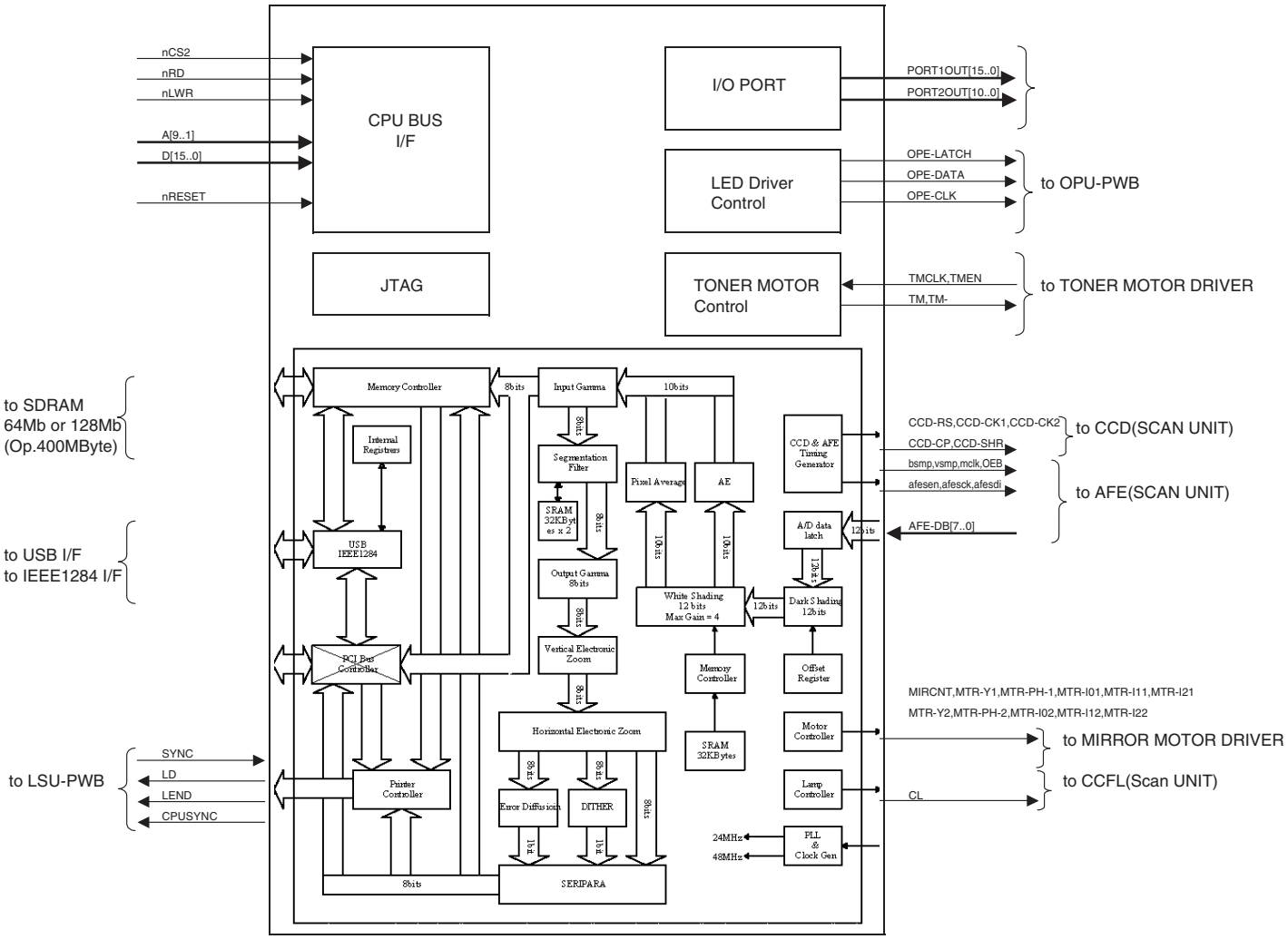
According to the operation mode set by the register set value, the image data from the CCD PWB are placed under shading, AE process, input gamma process, area separation, filter process, resolution conversion, zoom process, output gamma process, and binary coding.

Print control section

During copying, image-processed data are outputted to the LSU at the timing of LSU writing.

I/F section

This section performs DRUM control as image data buffer, image data send/receive with the OA982, and data send/receive with the IEEE1284 I/F.



b. ASIC (Signal table)

PIN No.	Signal Name	IN/OUT	Connected to	Description
1	cpudata7	IN/OUT	CPU	CPU data bus
2	cpudata6	IN/OUT	CPU	CPU data bus
3	cpudata5	IN/OUT	CPU	CPU data bus
4	cpudata4	IN/OUT	CPU	CPU data bus
5	VCC_AC	Power		
6	cpudata3	IN/OUT	CPU	CPU data bus
7	cpudata2	IN/OUT	CPU	CPU data bus
8	cpudata1	IN/OUT	CPU	CPU data bus
9	cpudata0	IN/OUT	CPU	CPU data bus
10	GND_AC	Power		
11	mircnt	OUT	Buffer IC	SPF scanner select signal
12	cpusync	OUT	CPU	CPU SYNC signal
13	mem_intr			Not used
14	arb_intr	OUT	CPU	INTR signal
15	VCC_core	Power		
16	cpu_ad8	IN	CPU	CPU address bus
17	cpu_ad7	IN	CPU	CPU address bus
18	cpu_ad6	IN	CPU	CPU address bus
19	cpu_ad5	IN	CPU	CPU address bus
20	GND_core	Power		
21	ram_clk_in	IN	ASIC	SDRAM clock on the board
22	cpu_ad4	IN	CPU	CPU address bus
23	cpu_ad3	IN	CPU	CPU address bus
24	cpu_ad2	IN	CPU	CPU address bus
25	cpu_ad1	IN	CPU	CPU address bus
26	cpu_ad0	IN	CPU	CPU address bus
27	xcpucs	IN	CPU	CS signal
28	sfclk	IN	Oscillator	Clock
29	GND_core	Power		
30	xcpuwr	IN	CPU	CPU write signal
31	xcpurd	IN	CPU	CPU read signal
32	nrst	IN	SYSTEM RESET	SYSTEM RESET
33	VCC_core	Power		
34	pfclk2	IN		Not used
35	clock_sw	IN		Pull up
36	GND_core	Power		
37	pfclk1_xout	OUT	X-tal units	VIDEO clock
38	pfclk1	IN	X-tal units	VIDEO clock
39	VSSPLL2			Pull up
40	VDDPLL2			Pull up
41	VSS2			Pull up
42	VDDI2			Pull up
43	tm2_15m			Pull up
44	xsync	IN	LSU	Horizontal sync signal from LSU (/SYNC)
45	GND_AC	Power		
46	xld	OUT	LSU	Laser drive signal
47	xlend	OUT	LSU	Laser APC signal
48	VCC_AC	Power		
49	mmd	OUT	Tr array IC	Main motor control signal. "H": Main motor ON
50	pmd	OUT	I/O	Polygon motor drive
51	tc	OUT	Tr array IC	Transfer charger control signal. "H":ON
52	gridl	OUT	Tr array IC	Main charger grid control signal. "H": L output
53	mc	OUT	Tr array IC	Main charger control signal. "H": ON
54	bias	OUT	I/O	HV bias drive
55	NC	OUT	I/O	Not used
56	vfmcnt	OUT	Tr array IC	Ventilation fan rotation speed control signal. "H": High speed, "L": Low speed
57	VCC_core	Power		
58	vfm	OUT	Tr array IC	Ventilation fan control signal. "H": Fan ON
59	/FPOFF	OUT	I/O	FAX poff signal
60	GND_core	Power		
61	DEV DIR	OUT	I/O	CRUM bus control
62	spfclh	OUT	Tr array IC	SPF/RSPF resist roller clutch control signal "H":ON
63	spfrsol	OUT	Tr array IC	SPF/RSPF document feed solenoid control signal "H":ON
64	spfgsol	OUT	Tr array IC	SPF/RSPF gate solenoid control signal "H":ON
65	spfpsol	OUT	Tr array IC	SPF/RSPF document transport solenoid control signal "H":ON
66	VCC_core	Power		
67	bias	OUT	Tr array IC	DV bias control signal. "H":ON
68	lden	OUT	Tr array IC	Laser circuit control signal. "H": Laser circuit ON
69	GND_AC	Power		
70	MRPS1	OUT	I/O	SPF current control
71	MRPS2	OUT	I/O	SPF current control
72	MRPS3	OUT	I/O	SPF current control
73	CPFS1	OUT	I/O	1st cassette pick up solenoid
74	VCC_AC	Power		
75	CPFS2	OUT	I/O	2nd cassette pick up solenoid
76	pr	OUT	I/O	Power relay control
77	hl	OUT	Tr array IC	Heater lamp control signal. "H":ON
78	GND_core	Power		
79	MPFS	OUT	I/O	Multi-bypass solenoid
80	miron	OUT	Buffer IC	SPF scanner select signal
81	spfon	OUT	Buffer IC	SPF ON signal
82	KEYSC1	OUT	I/O	Key sense control
83	KEYSC2	OUT	I/O	Key sense control
84	KEYSC3	OUT	I/O	Key sense control
85	IMC ready	OUT	I/O	IMC control
86	VCC_core	Power		
87	tmx	OUT	Buffer IC	Toner motor control signal
88	tm	OUT	Buffer IC	Toner motor control signal
89	op_data	OUT	Tr array IC	Operation circuit data signal
90	ope_latch	OUT	Tr array IC	Operation circuit latch signal. Data take-in at "L"
91	GND_AC	Power		

PIN No.	Signal Name	IN/OUT	Connected to	Description
92	op_clk	OUT	Tr array IC	Operation circuit clock signal
93	VCC_AC	Power		
94	scanstop	IN	CPU	Scan stop signal
95	testpin0	IN	TEST	TEST
96	testmode_on	IN	TEST	TEST
97	ie1284_stb	IN	I/F board connector	/STB signal (IEEE1284 communication port)
98	ie1284_autofd	IN	I/F board connector	/AUTOFD signal (IEEE1284 communication port)
99	VCC_core	Power		
100	ie1284_slctin	IN	I/F board connector	/SLCTIN signal (IEEE1284 communication port)
101	ie1284_init	IN	I/F board connector	/INIT signal (IEEE1284 communication port)
102	ie1284_slct	OUT	I/F board connector	SLCT signal (IEEE1284 communication port)
103	GND_core	Power		
104	ie1284_pe	OUT	I/F board connector	PE signal (IEEE1284 communication port)
105	ie1284_busy	OUT	I/F board connector	BUSY signal (IEEE1284 communication port)
106	ie1284_ack	OUT	I/F board connector	/ACK signal (IEEE1284 communication port)
107	ie1284_fault	OUT	I/F board connector	/FAULT signal (IEEE1284 communication port)
108	VCC_core	Power		
109	ie1284_rev	OUT	I/F board connector	/REV signal (IEEE1284 communication port)
110	ie1284_parad7	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
111	ie1284_parad6	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
112	ie1284_parad5	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
113	ie1284_parad4	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
114	ie1284_parad3	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
115	ie1284_parad2	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
116	VCC_AC	Power		
117	ie1284_parad1	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
118	ie1284_parad0	IN/OUT	I/F board connector	DATA bus (IEEE1284 communication port)
119	suspend	OUT	I/F board connector	SUSPEND signal (USB communication port)
120	GND_AC	Power		
121	oen	OUT	I/F board connector	OEN signal (USB communication port)
122	vmout	OUT	I/F board connector	VMOUT signal (USB communication port)
123	vpout	OUT	I/F board connector	VPOUT signal (USB communication port)
124	GND_core	Power		

PIN No.	Signal Name	IN/OUT	Connected to	Description
125	vmin	IN	I/F board connector	VMIN signal (USB communication port)
126	vpin	IN	I/F board connector	VPIN signal (USB communication port)
127	rcv	IN	I/F board connector	RCV signal (USB communication port)
128	scanst	IN	CPU	Scan start signal
129	printst	IN	Start signal	Start signal
130	receptst	IN	Start signal	Start signal
131	transst	IN	CPU	Data transfer start signal
132	VCC_core	Power		
133	dci_dat7	IN	E-SORT (OA982)	E-SORT data bus
134	dci_dat6	IN	E-SORT (OA982)	E-SORT data bus
135	dci_dat5	IN	E-SORT (OA982)	E-SORT data bus
136	dci_dat4	IN	E-SORT (OA982)	E-SORT data bus
137	dci_dat3	IN	E-SORT (OA982)	E-SORT data bus
138	dci_dat2	IN	E-SORT (OA982)	E-SORT data bus
139	dci_dat1	IN	E-SORT (OA982)	E-SORT data bus
140	dci_dat0	IN	E-SORT (OA982)	E-SORT data bus
141	GND_core	Power		
142	out_dc_req	IN	E-SORT (OA982)	E-SORT control signal
143	in_dc_req	IN	E-SORT (OA982)	E-SORTcontrol signal
144	GND_AC	Power		
145	out_dc_ack	OUT	E-SORT (OA982)	E-SORT control signal
146	out_dc_wt	OUT	E-SORT (OA982)	E-SORT control signal
147	VCC_AC	Power		
148	in_dc_ack	OUT	E-SORT (OA982)	E-SORTcontrol signal
149	in_dc_cs	OUT	E-SORT (OA982)	E-SORTcontrol signal
150	dco_dat7	OUT	E-SORT (OA982)	E-SORT data bus
151	dco_dat6	OUT	E-SORT (OA982)	E-SORT data bus
152	dco_dat5	OUT	E-SORT (OA982)	E-SORT data bus
153	dco_dat4	OUT	E-SORT (OA982)	E-SORT data bus
154	dco_dat3	OUT	E-SORT (OA982)	E-SORT data bus
155	VCC_AC	Power		
156	dco_dat2	OUT	E-SORT (OA982)	E-SORT data bus
157	dco_dat1	OUT	E-SORT (OA982)	E-SORT data bus
158	dco_dat0	OUT	E-SORT (OA982)	E-SORT data bus
159	hsync		FAX	FAX
160	GND_core	Power		
161	out_req			Not used
162	in_ack			Not used
163	in_cs			Not used
164	GND_AC	Power		

PIN No.	Signal Name	IN/OUT	Connected to	Description
165	mdat00			Not used
166	mdat01			Not used
167	mdat02			Not used
168	mdat03			Not used
169	VCC_core	Power		
170	mdat04			Not used
171	mdat05			Not used
172	mdat06			Not used
173	GND_core	Power		
174	mdat07			Not used
175	mdat08			Not used
176	mdat09			Not used
177	VCC_AC	Power		
178	mdat10			Not used
179	mdat11			Not used
180	mdat12			Not used
181	VCC_core	Power		
182	mdat13			Not used
183	mdat14			Not used
184	mdat15			Not used
185	GND_AC	Power		
186	pcl_s_print			Not used
187	fax_s_print			Not used
188	es_s_print			Not used
189	out_ack			Not used
190	out_cs			Not used
191	in_req			Not used
192	VCC_core	Power		
193	TCK		JTAG	Not used
194	TMS		JTAG	Not used
195	TRSTA		JTAG	Not used
196	TDI		JTAG	Not used
197	TDO		JTAG	Not used
198	GND_core	Power		
199	afp_vsmp	OUT	CCD PWB	AFE control signal
200	ccd_tg	OUT	CCD PWB	CCD control signal
201	ccdrs	OUT	CCD PWB	CCD control signal
202	afp_bsmp	OUT	CCD PWB	AFE control signal
203	ccdcp	OUT	CCD PWB	CCD control signal
204	afe_sdata	IN	CCD PWB	AD's serial data
205	ccd_ph2	OUT	CCD PWB	CCD control signal
206	ccd_ph1	OUT	CCD PWB	CCD control signal
207	afp_afesen	OUT	CCD PWB	AFE control signal
208	GND_core	Power		
209	afp_adcclk	OUT	CCD PWB	AFE control signal
210	VCC_core	Power		
211	afp_afesck	OUT	CCD PWB	AFE control signal
212	GND_AC	Power		
213	afp_data7	IN	CCD PWB	Image scan data
214	afp_data6	IN	CCD PWB	Image scan data
215	afp_data5	IN	CCD PWB	Image scan data
216	afp_data4	IN	CCD PWB	Image scan data
217	afp_data3	IN	CCD PWB	Image scan data
218	afp_data2	IN	CCD PWB	Image scan data
219	afp_data1	IN	CCD PWB	Image scan data
220	afp_data0	IN	CCD PWB	Image scan data
221	VCC_AC	Power		
222	cl	OUT	Logic IC	Copy lamp control signal
223	GND_core	Power		
224	mtr_y3	OUT	I/O	Carriage motor current control signal
225	mtr_y2	OUT	Tr array IC	Carriage motor current control signal
226	mtr_y1	OUT	Tr array IC	Carriage motor current control signal
227	VCC_core	Power		
228	mtr_phase2	OUT	Motor driver	Carriage motor control signal
229	mtr_i02	OUT	Motor driver	Carriage motor control signal
230	mtr_i12	OUT	Motor driver	Carriage motor control signal
231	mtr_i22	OUT	Motor driver	Carriage motor control signal
232	mtr_phase1	OUT	Motor driver	Carriage motor control signal
233	mtr_i01	OUT	Motor driver	Carriage motor control signal
234	mtr_i11	OUT	Motor driver	Carriage motor control signal
235	mtr_i21	OUT	Motor driver	Carriage motor control signal
236	GND_AC	Power		
237	ram_mad3	OUT	SDRAM	SDRAM (Image process page memory) address bus
238	ram_mad2	OUT	SDRAM	SDRAM (Image process page memory) address bus
239	GND_core	Power		
240	ram_mad1	OUT	SDRAM	SDRAM (Image process page memory) address bus
241	ram_mad0	OUT	SDRAM	SDRAM (Image process page memory) address bus
242	ram_mad10	OUT	SDRAM	SDRAM (Image process page memory) address bus
243	VCC_core	Power		
244	ram_banks1	OUT	SDRAM	SDRAM (Image process page memory) BANK signal
245	ram_banks0	OUT	SDRAM	SDRAM (Image process page memory) BANK signal
246	xram_cs	OUT		SDRAM (Image process page memory) CS signal
247	xram_ras	OUT	SDRAM	SDRAM (Image process page memory) RAS signal
248	xram_cas	OUT	SDRAM	SDRAM (Image process page memory) CAS signal
249	VCC_AC	Power		
250	xram_wde	OUT	SDRAM	SDRAM (Image process page memory) WDE signal
251	ram_dqm0	OUT	SDRAM	SDRAM (Image process page memory) DQM signal
252	GND_AC	Power		
253	ram_data7	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus

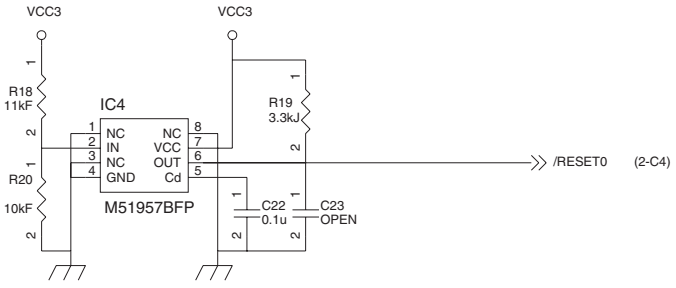
PIN No.	Signal Name	IN/OUT	Connected to	Description
254	ram_data6	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
255	ram_data5	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
256	ram_data4	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
257	GND_core	Power		
258	ram_data3	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
259	ram_data2	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
260	ram_data1	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
261	ram_data0	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
262	GND_AC	Power		
263	ram_data15	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
264	ram_data14	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
265	VCC_AC	Power		
266	ram_data13	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
267	ram_data12	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
268	ram_data11	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
269	ram_data10	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
270	ram_data9	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
271	ram_data8	IN/OUT	SDRAM	SDRAM (Image process page memory) data bus
272	VCC_core	Power		
273	ram_dqm1	OUT	SDRAM	SDRAM (Image process page memory) DQM signal
274	ram_cke	OUT	SDRAM	SDRAM (Image process page memory) CKE signal
275	GND_AC	Power		
276	ram_clk_out		SDRAM	SDRAM's clock
277	GND_core	Power		
278	ram_mad12	OUT	SDRAM	SDRAM (Image process page memory) address bus
279	ram_mad11	OUT	SDRAM	SDRAM (Image process page memory) address bus
280	ram_mad9	OUT	SDRAM	SDRAM (Image process page memory) address bus
281	VCC_core	Power		
282	ram_mad8	OUT	SDRAM	SDRAM (Image process page memory) address bus
283	ram_mad7	OUT	SDRAM	SDRAM (Image process page memory) address bus
284	VCC_AC	Power		
285	ram_mad6	OUT	SDRAM	SDRAM (Image process page memory) address bus
286	ram_mad5	OUT	SDRAM	SDRAM (Image process page memory) address bus
287	ram_mad4	OUT	SDRAM	SDRAM (Image process page memory) address bus
288	GND_AC	Power		
289	cpudata15	IN/OUT	CPU	CPU data bus
290	cpudata14	IN/OUT	CPU	CPU data bus
291	cpudata13	IN/OUT	CPU	CPU data bus
292	cpudata12	IN/OUT	CPU	CPU data bus
293	cpudata11	IN/OUT	CPU	CPU data bus
294	cpudata10	IN/OUT	CPU	CPU data bus
295	cpudata9	IN/OUT	CPU	CPU data bus
296	cpudata8	IN/OUT	CPU	CPU data bus

(4) Reset circuit

This circuit detects ON/OFF of the power source, and controls start/stop of each circuit. The voltage of 3.3V in the MCU PWB is detected by the reset IC to generate the reset signal.

When the power voltage reaches the specified level, each circuit is operated, but stopped before the power voltage falls below the specified level in order to protect against malfunction of the circuit. The CPU/Flash ROM is reset by the power reset circuit, and system reset of ASIC, OA982, FAX, and NIC is generated from the CPU (general-purpose port output).

Reset IC

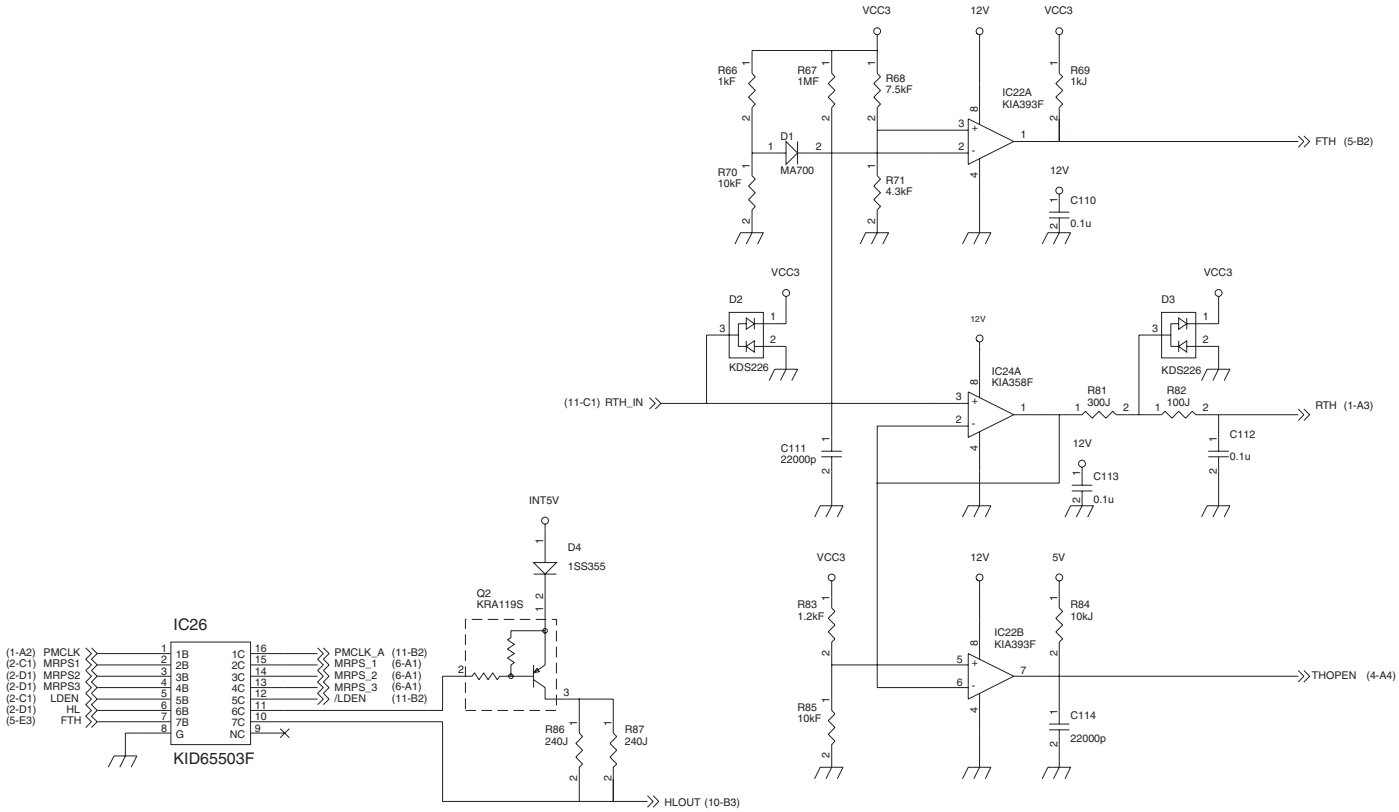


(5) Heater lamp control circuit

a. Outline

The heater lamp control circuit detects the heat roller surface temperature, and converts the temperature into a voltage. The converted voltage is inputted to the CPU.

The CPU converts the inputted analog voltage into a digital value. The digital conversion value and the set value of the test command are compared to control ON/OFF of the heater lamp according to the level, controlling the heat roller surface temperature to be the fixed level.



[High temperature protection circuit in case of CPU hung up (uncontrollable)]

For IC22 3Pin (reference voltage), +3.3V is divided by the resistor. The thermistor terminal voltage is inputted to IC22 2Pin. When, therefore, the voltage at 2Pin falls below the voltage at 3Pin, IC22 1Pin becomes "H" and the HL signal is pulled to the GND level, suppressing generation of the lighting signal of the heater lamp. (IC22 output 1Pin is normally Low.)

[When the heat roller surface temperature is lower than the set level]

a. When the thermistor terminal voltage is higher than the set level, the output signal HL from ASIC becomes HIGH level.

b. This HL signal becomes the HLOUT signal through IC26, and is inputted to the photo triac coupler in the power PWB. When, therefore, the HL signal is HIGH, the internal triac turns on.

c. When the internal triac turns on, the heater lamp lights up.

[When the heat roller surface temperature is higher than the set level]

a. When the thermistor terminal voltage falls below the set level, the output signal HL from ASIC becomes LOW level.

b. The HL signal becomes LOW, the power PWB photo triac coupler turns OFF, and the heater lamp turns OFF.

[When the thermistor is open]

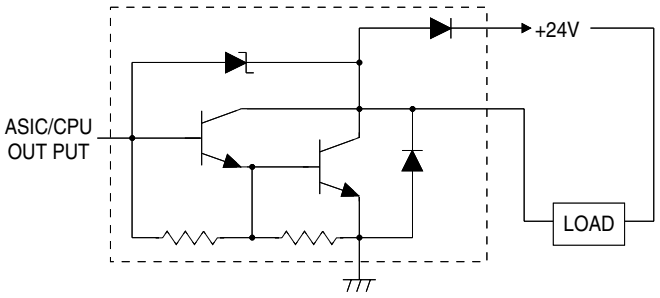
The voltage at IC22 6Pin becomes higher than the voltage at 5Pin, and the 7Pin output THOPEN becomes LOW. This is inputted to the CPU to display the trouble code H2.

(6) Driver circuit (Clutch, solenoid)

Since a load cannot be directly driven by each load signal from the CPU or the ASIC, each load is driven through the driver IC (transistor array).

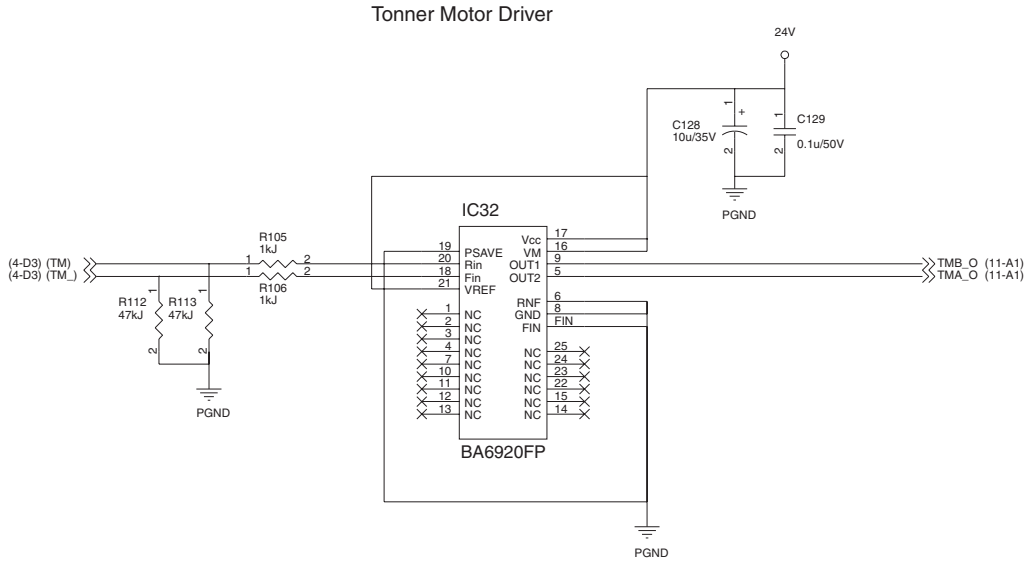
A large drive current (load current) is ordained from a small input current (ASIC output current).

When the driver input voltage (base resistor input) is HIGH, the transistor turns ON to flow a current through the load, operating the load.



(7) Toner motor control circuit

The IC32 is the motor drive IC, which generates pseudo-AC waveforms by the pulse signal from the ASIC to drive the toner supply motor.

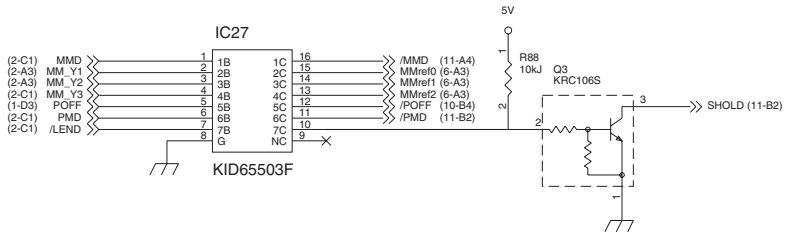


(8) Main motor control circuit/ LSU (Polygon motor) control circuit

The motors are driven by the MMD (main motor) signal and the PMD (polygon motor) signal from the ASIC.

The MMD signal and the PMD signal are turned HIGH and sent through the driver IC27 to the control circuit in the main motor/LSU, rotating each motor.

When the motor RPM reaches the specified level, the MMLD signal (main) and the PMLD signal (LSU) become LOW. The CPU detects it to start process control.



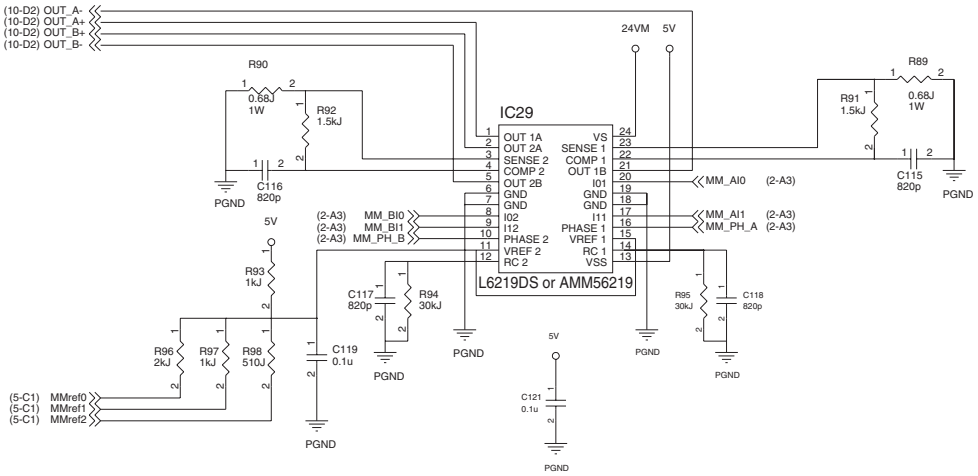
(9) Mirror motor control circuit, SPF motor control circuit, Duplex motor control circuit, Shifter motor control circuit.

Stepping motors are employed for the mirror motor, the SPF motor, and the duplex motor. The driver for IC29 (for the mirror motor) is the bipolar drive constant current drive IC. The drive for IC31 (for the SPF) is the uni-polar drive constant current drive IC. The drive for IC28 (for the duplex) and IC30 (for the shifter) is the constant current drive IC.

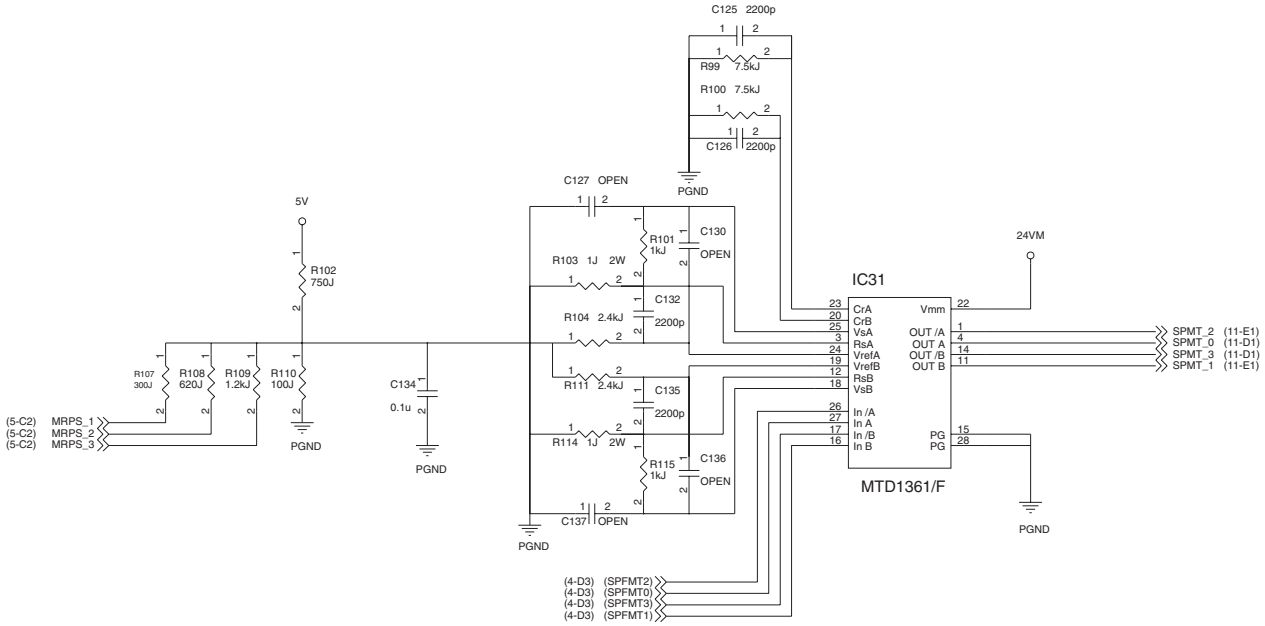
Each motor is driven in W1-2 phase excitement, 1-2 phase excitement, or 2-phase excitement.

The mirror motor/SPF motor related to image scan are driven by a constant current, and each motor current is switched in each magnification ratio.

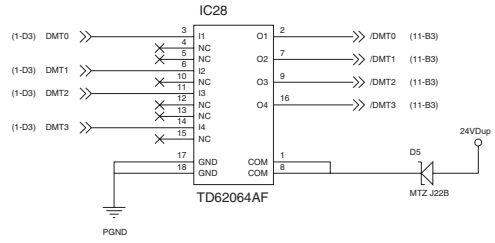
Scanner Motor Driver



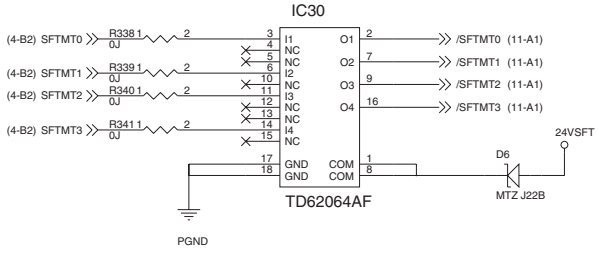
SPF Motor Driver



Duplex Motor Driver



Shifter Motor Driver



(10) OPE PWB

a. Outline

The operation circuit is composed of the LCD control circuit, the key matrix circuit, the display matrix circuit, and the buzzer circuit, realizing the U/I functions.

b. LCD control circuit

The character LCD (COG) in 2 lines and 16 digits is used. The display data are sent from the MCU (CPU) to LCD internal registers, controlling the LCD.

c. Key matrix circuit

The SEL signal is sent from the CPU of MCU to the matrix selector IC (multiplexer) in the operation circuit. The signal detects OFF/ON of the key, and is sent to the CPU as serial data.

d. LED matrix circuit

The display is controlled by inputting the serial data signal, the clock signal, and the latch signal from ASIC to the LED driver in the operation circuit.

In the LED driver, data are set to the register (8bit) and latched to control the IC output port, performing matrix-driving of ON/OFF of the LED.

(11) Carriage Unit

a. Outline

The carriage unit is provided with the CCD PWB, the inverter PWB, the lamps, etc. A document is radiated, and image data read by the CCD are A/D converted to be sent to the ASIC.

b. CCD PWB

The color image sensor uPD8861 (5400 pixels x 3 lines) is used as the CCD on the CCD PWB to scan images in the resolution of 600dpi/US letter size in the main scanning direction.

Image data scanned by the CCD are inputted to AFE (AD9826), where they are A/D-converted to output digital data. The output digital data are sent to the MCU PWB and to the ASIC. The ASIC performs image process with the digital data.

c. Lamp inverter PWB

The transformer is controlled by the lamp control signal from the MCU PWB to turn ON/OFF the cool cathode ray tube by the transformer output.

B. DC power circuit

The DC power circuit directly rectifies the AC power and performs switching-conversion with the DC/DC converter circuit, and rectifies and smoothes again to generate a DC voltage.

The constant voltage control circuit is of +5VEN. +24V and +12V are of the non-control system by winding from the +5VEN winding. As shown in fig (1), +24V, +12V, and +5V are provided with the ON/OFF function by external signals. +3.3V is outputted from +5VEN to the regulator IC.

Refer to the block diagram, fig (1).

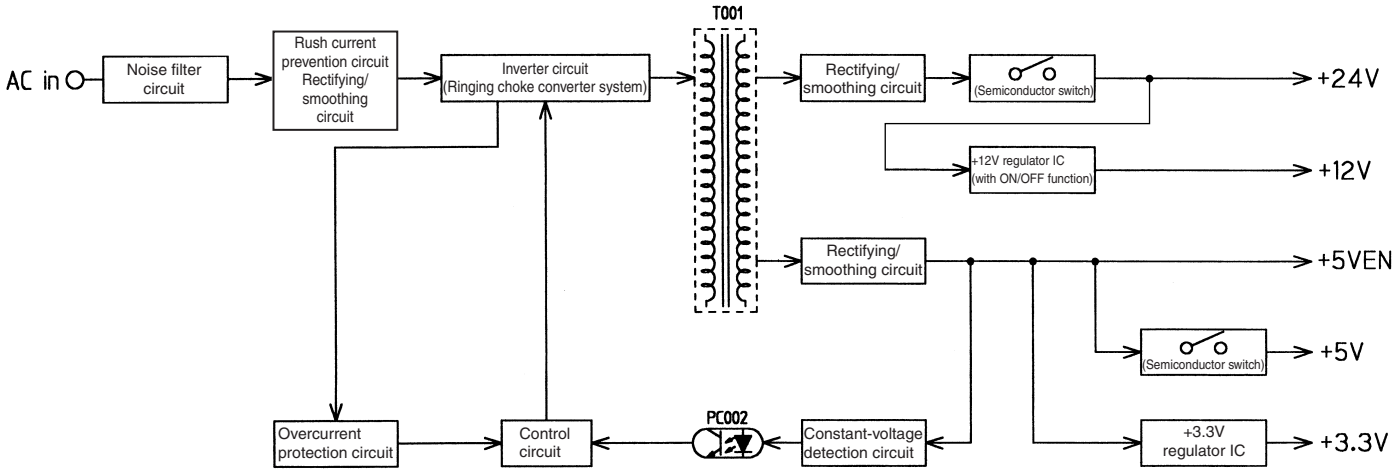


fig (1) Block diagram

(1) Noise filter circuit

The filter circuit is composed of L and C. It reduces common noises and normal mode noises generated from the AC line.

The common noise means that generated in each line for GND. Its noise component is delivered through C002, C003, and C022 to GND.

The normal noise means that overlapped in the AC line or the output line. It is attenuated by C023, C001, L002, C004, and L003. Refer to fig (2).

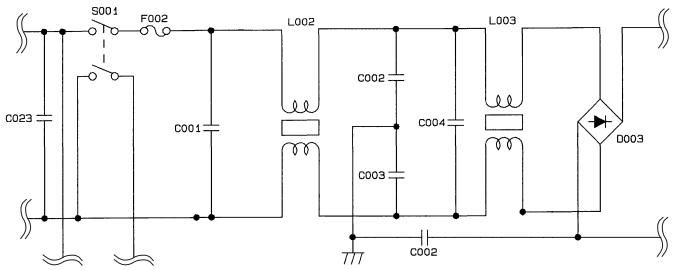


fig (2) Noise filter circuit

(2) Rush current prevention circuit and rectifying/ smoothing circuit

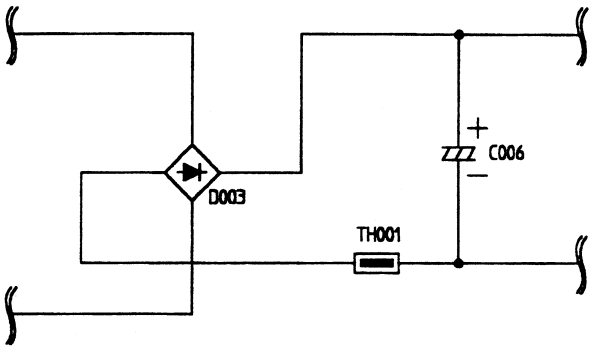


fig (3) Rush current prevention, rectifying/smoothing circuit

Since the AC power is directly rectified, if there were not this rush current prevention resistor (TH001), an extremely large rush current would flow due to a charging current flowing through the smoothing capacitor C006 when turning on the power.

To prevent against this, the rush current prevention resistor TH001 is provided between the rectifying diode D003 and the smoothing diode C006, suppressing a rush current.

The rectifying/smoothing circuit rectifies a 60Hz AC voltage with the rectifying circuit, and smoothes it with the smoothing capacitor C006.

(3) Inverter and control circuit (Ringing choke converter system)

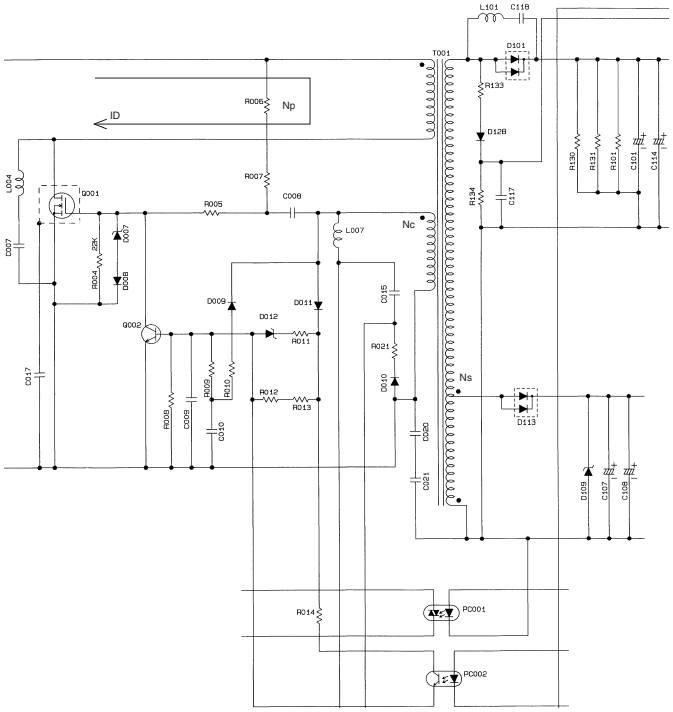


Fig. (4) Inverter and control circuit

When the power is supplied to this circuit, the DC voltage, Vref, supplied by the rectifying/smoothing circuit is applied through R006 and R007 to FET (Q001), turning on Q001.

When Q001 is turned on, the drain current, I_D, flows as the waveform B in Fig. (5) to apply V_{DC} to the main winding, N_P, on the primary side.

At the same time, a voltage is generated in N_C winding and applied through R005 and C008b to the gate of Q001. As a result, Q001 is turned on rapidly.

At the same time with this, C009 is charged through D001, R001, and D012. When the potential of C009 reaches 0.7V (= V_{BE} of Q002), Q002 turns on to turn off Q001.

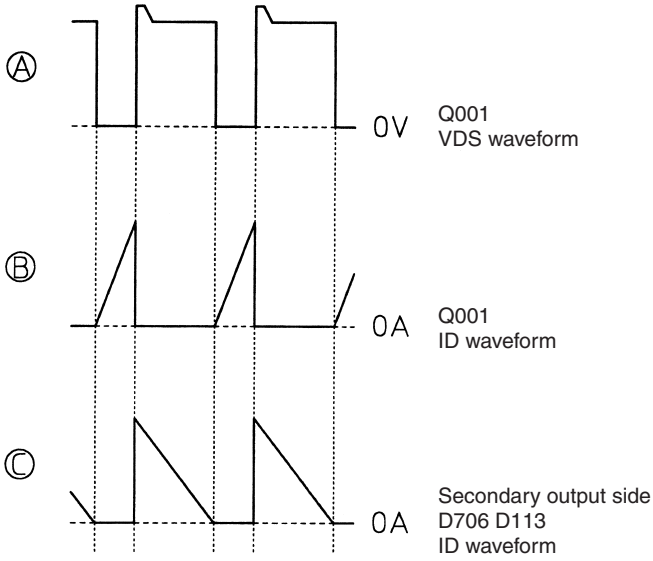


Fig. (5) Ringing choke converter operation waveforms

When Q001 turns off, energy accumulated in the transformer (T001) flows a current of waveform C in the path indicated with dotted line as shown in the figure above through D101 and D113 and dissipates to the secondary output side. When this energy is exhausted, the current flowing through D101 and D113 turns off. However, the N_S winding has a slight remaining energy, which generates a voltage in the base winding N_C and turns on Q001 again to repeat switching operation, supplying a high frequency power to the secondary side.

(4) Overcurrent protection circuit (Primary side)

The ON period extension due to an increased output load is detected, and the OFF period of Q001 is extended by the control circuit, and energy accumulated in the primary winding of the transformer T001 is reduced, providing protection against an overcurrent. Refer to Fig. (4).

(5) Rectifying/smoothing circuit (+5V)

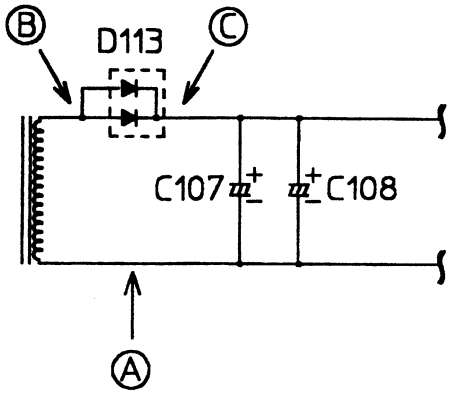


fig (6) Rectifying/smoothing circuit

The high frequency pulse generated by the inverter circuit is decreased by the converter transformer, rectified by the high frequency diode D113, and smoothed by C107 and C108.

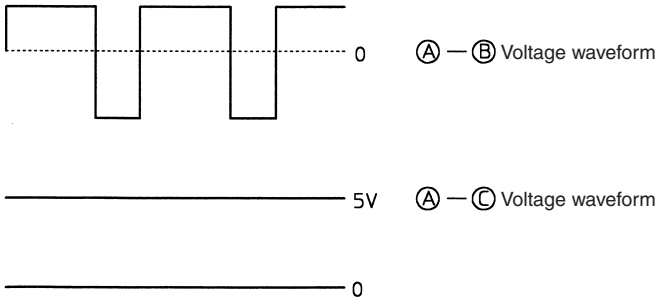


fig (7) +5V rectifying/smoothing circuit voltage waveform

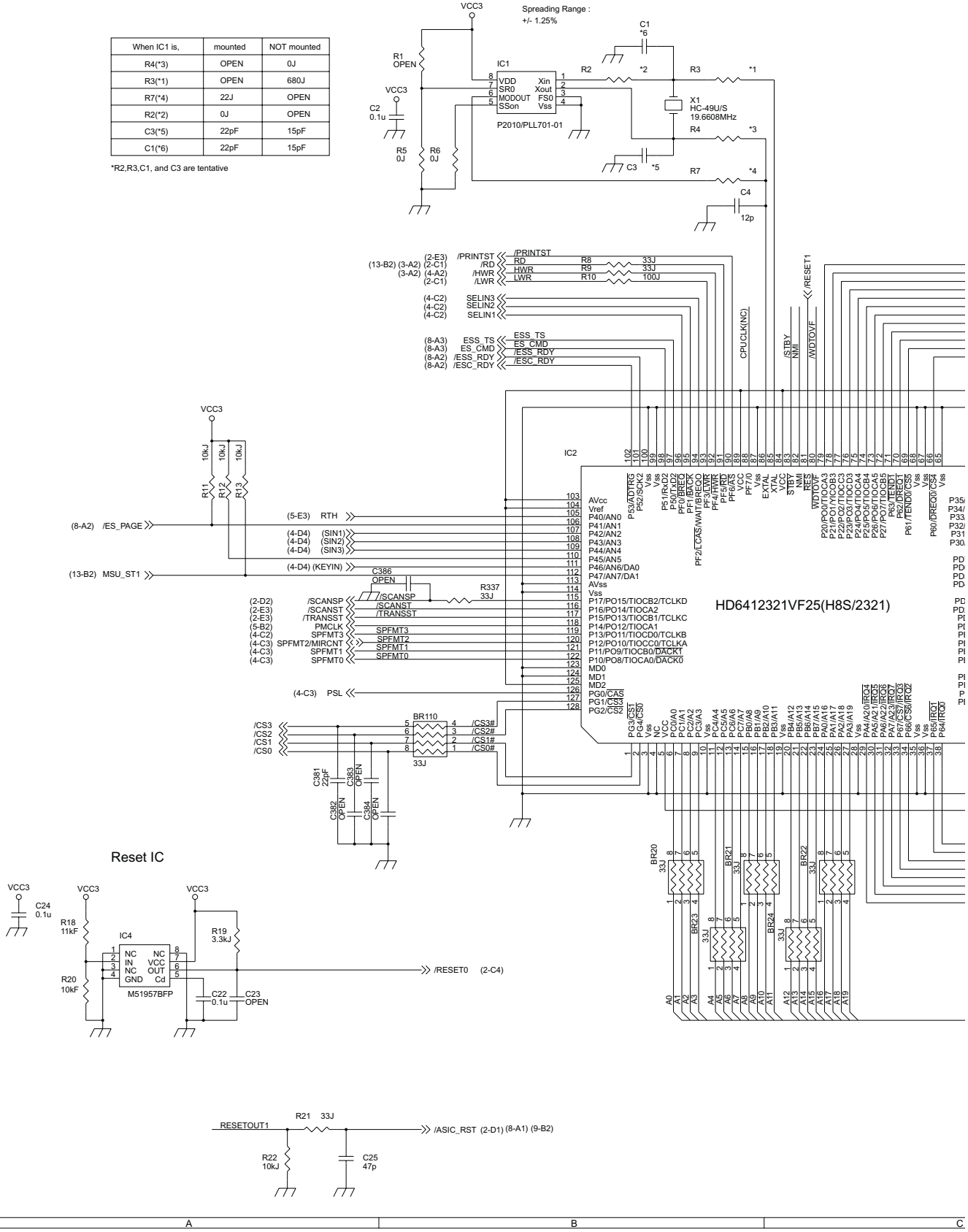
[14] CIRCUIT DIAGRAM

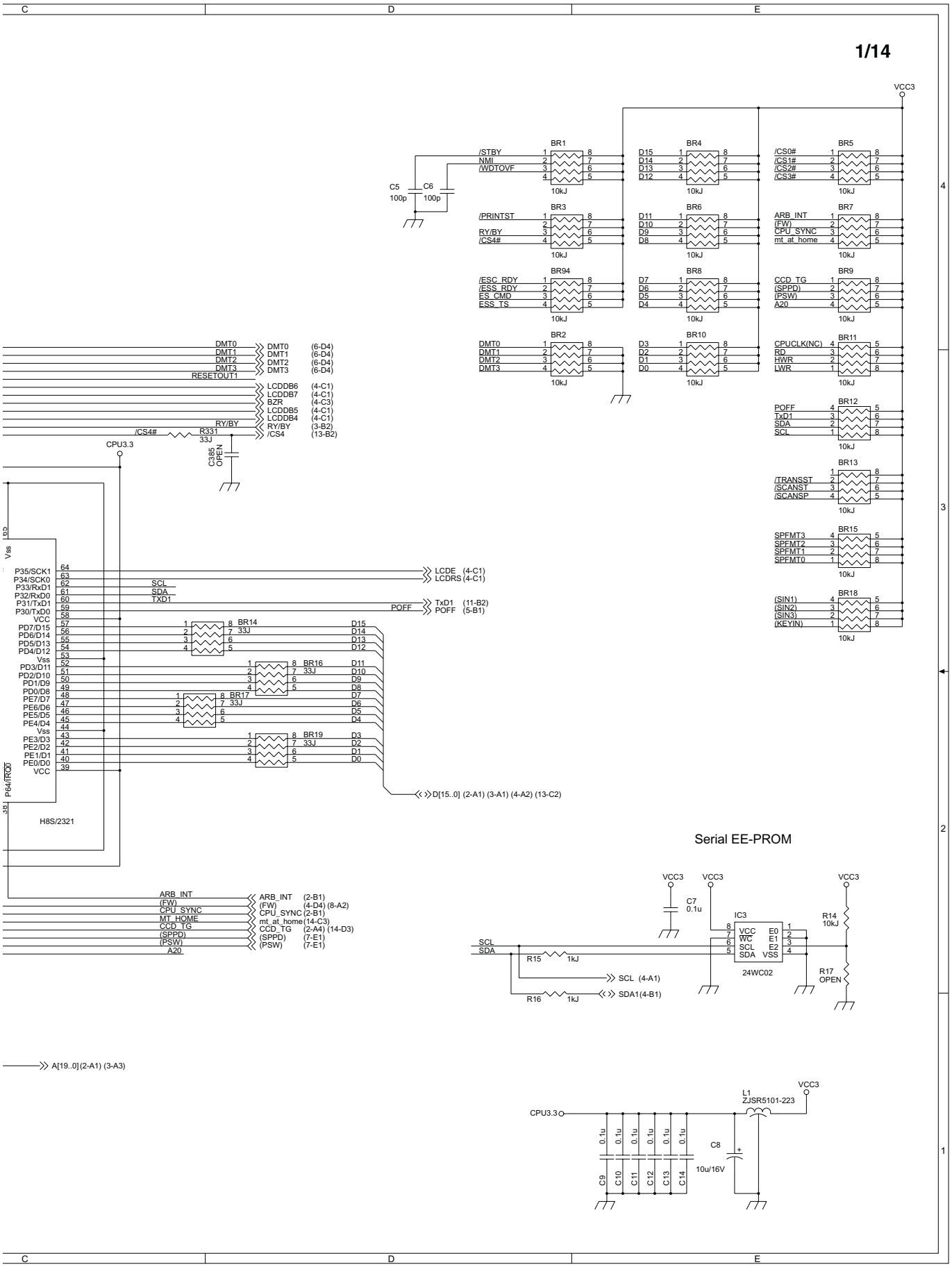
1. MCU PWB

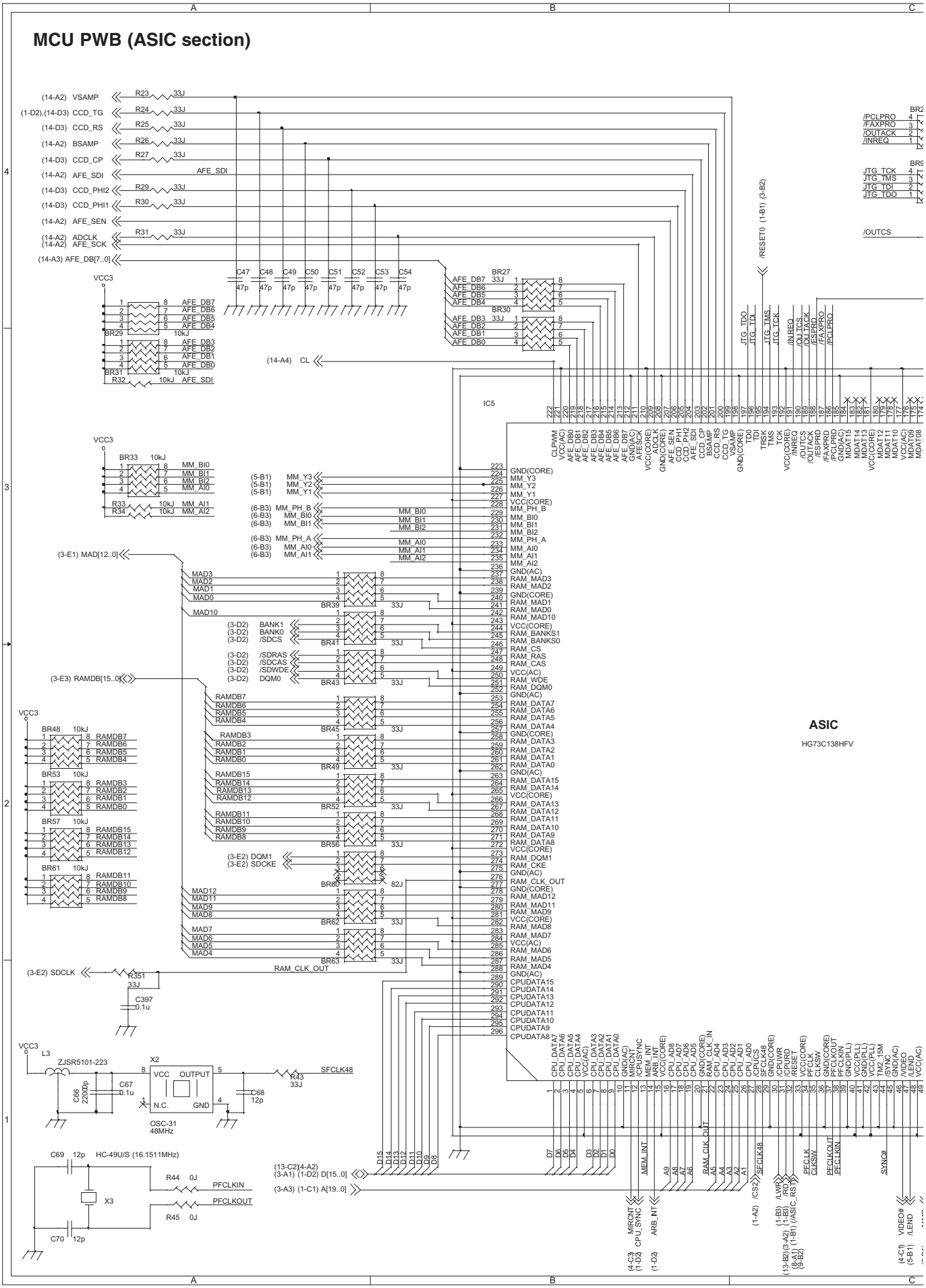
MCU PWB (CPU section)

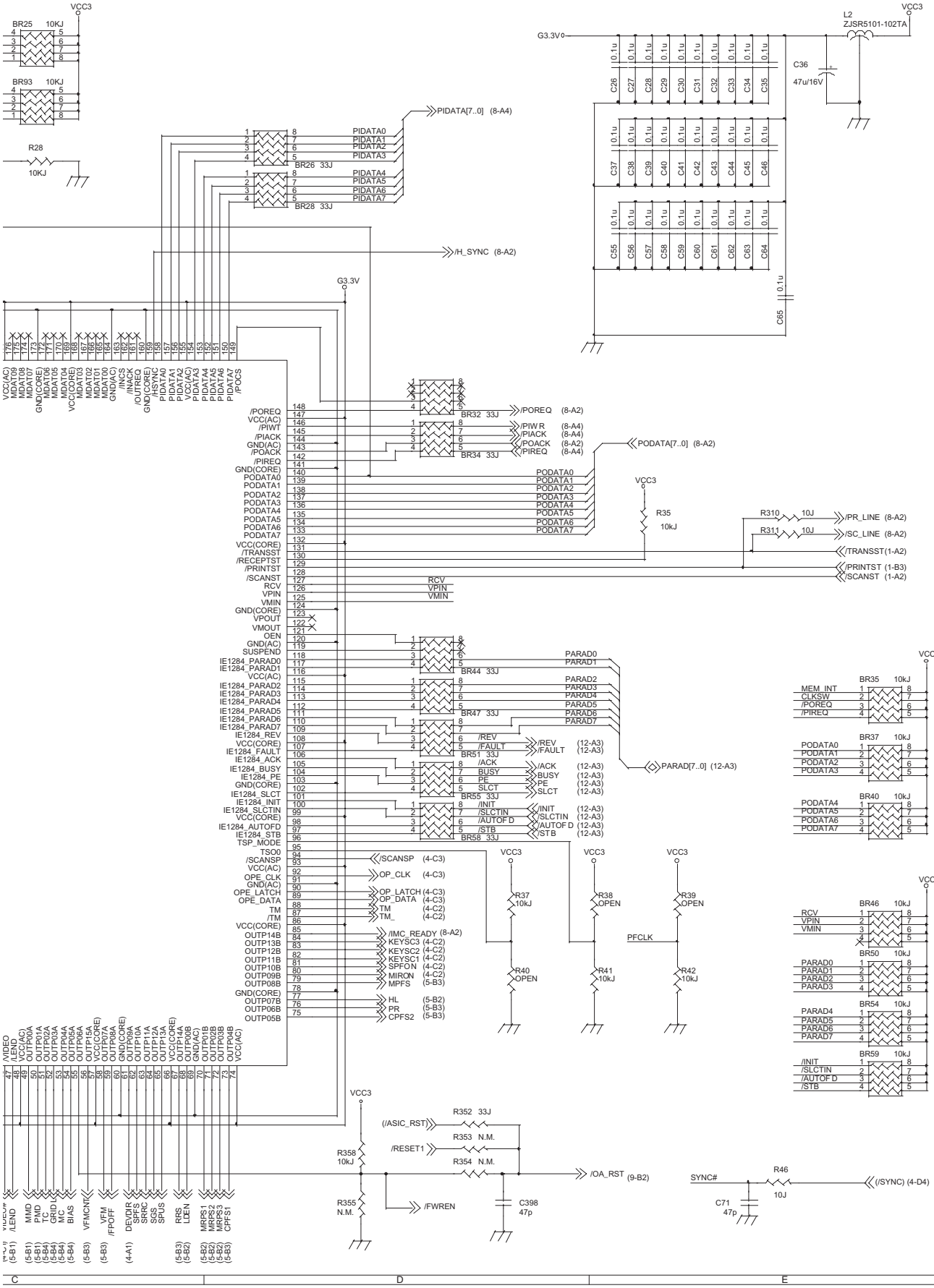
When IC1 is,	mounted	NOT mounted
R4(*3)	OPEN	0J
R3(*1)	OPEN	680J
R7(*4)	22J	OPEN
R2(*2)	0J	OPEN
C3(*5)	22pF	15pF
C1(*6)	22pF	15pF

*R2,R3,C1, and C3 are tentative

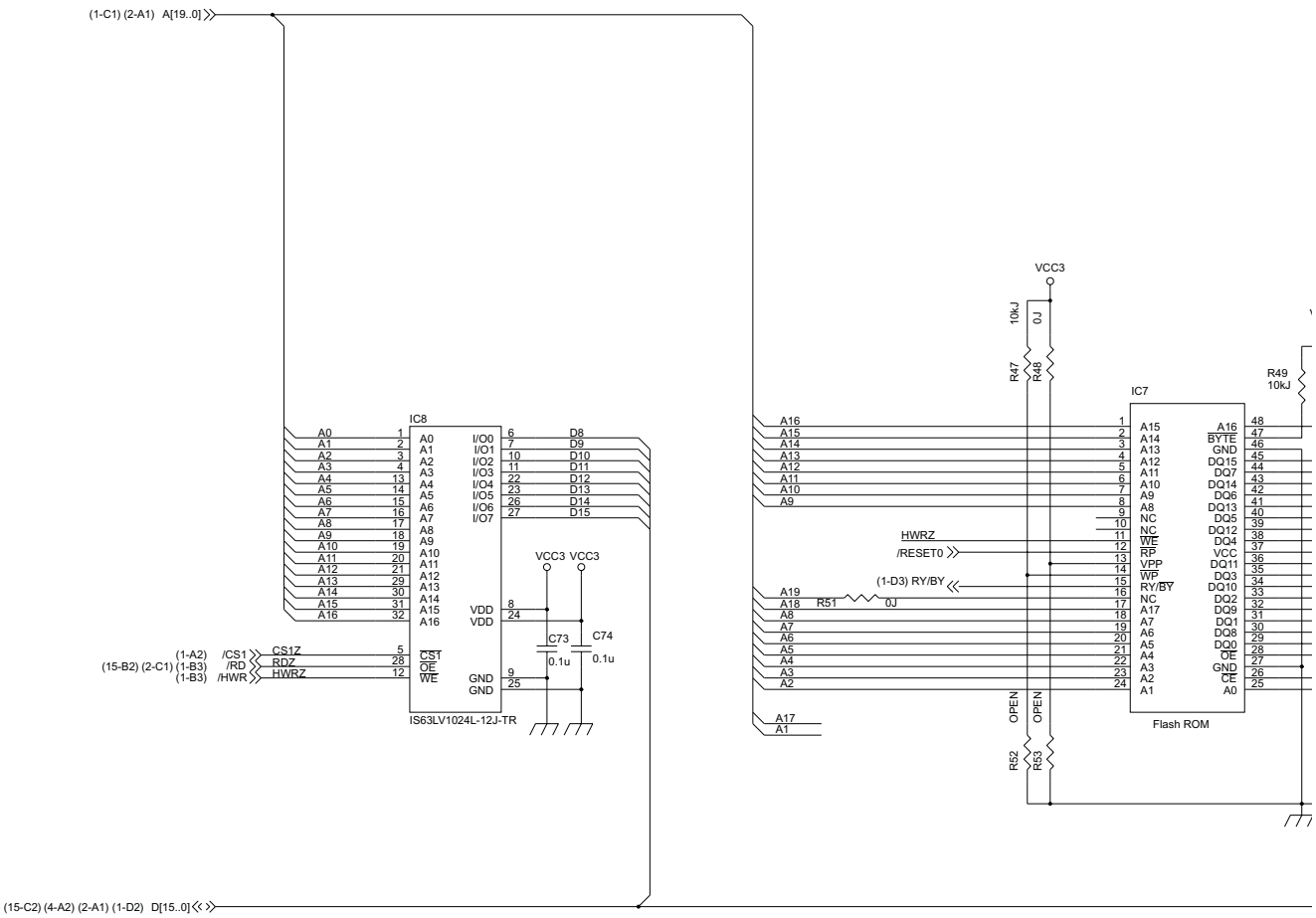



1/14
VCC3
BR1
/STBY
NMI
/WDTOVF
10kJ
BR4
D15
D14
D13
D12
BR5
/CS0#
/CS1#
/CS2#
/CS3#
C5 100p
C6 100p
BR3
/PRINTST
RY/BY
/CS4#
BR6
D11
D10
D9
D8
BR7
ARB_INT
(FW)
CPU_SYNC
mt_at_home
BR94
/ESC_RDY
/ESS_RDY
ES_CMD
ESS_TS
BR8
D7
D6
D5
D4
BR9
CCD_TG
(SPPD)
(PSW)
A20
BR2
DMT0
DMT1
DMT2
DMT3
BR10
D3
D2
D1
D0
BR11
CPUCLK(NC)
RD
HWR
LWR
BR12
POFF
TxD1
SDA
SCL
BR13
/TRANSST
/SCANST
/SCANSP
BR15
SPFMT3
SPFMT2
SPFMT1
SPFMT0
BR18
(SIN1)
(SIN2)
(SIN3)
(KEYIN)
DMT0 (6-D4)
DMT1 (6-D4)
DMT2 (6-D4)
DMT3 (6-D4)
RESETOUT1
LCDDB6 (4-C1)
LCDDB7 (4-C1)
BZR (4-C3)
LCDDB5 (4-C1)
LCDDB4 (4-C1)
RY/BY (3-B2)
/CS4# R331 33J /CS4 (13-B2)
CPU3.3
C385 OPEN
H8S/2321
P35/SCK1
P34/SCK0
P33/RxD1
P32/RxD0
P31/TxD1
P30/TxD0
LCDE (4-C1)
LCDRS (4-C1)
SCL
SDA
TXD1
TxD1 (11-B2)
POFF (5-B1)
BR14 33J
BR16 33J
BR17 33J
BR19 33J
D[15..0] (2-A1) (3-A1) (4-A2) (13-C2)
P64/IRQ0
ARB_INT (2-B1)
(FW) (4-D4) (8-A2)
CPU_SYNC (2-B1)
MT_HOME mt_at_home (14-C3)
CCD_TG (2-A4) (14-D3)
(SPPD) (7-E1)
(PSW) (7-E1)
A20
Serial EE-PROM
C7 0.1u
IC3
VCC WC SCL SDA
E0 E1 E2 VSS
24WC02
R14 10kJ
R17 OPEN
R15 1kJ
R16 1kJ
SCL (4-A1)
SDA1(4-B1)
A[19..0](2-A1) (3-A3)
L1 ZJSR5101-223
C8 10u/16V
C9 C10 C11 C12 C13 C14 0.1u


MCU PWB (ASIC section)
ASIC
HG73C138HFV
IC5
(14-A2) VSAMP
(1-D2),(14-D3) CCD_TG
(14-D3) CCD_RS
(14-A2) BSAMP
(14-D3) CCD_CP
(14-A2) AFE_SDI
(14-D3) CCD_PHI2
(14-D3) CCD_PHI1
(14-A2) AFE_SEN
(14-A2) ADCLK
(14-A2) AFE_SCK
(14-A3) AFE_DB[7..0]
(14-A4) CL
(3-E1) MAD[12..0]
(3-E3) RAMDB[15..0]
(3-E2) SDCLK
(3-E2) DQM1
(3-E2) SDCKE
(3-D2) BANK1
(3-D2) BANK0
(3-D2) /SDCS
(3-D2) /SDRAS
(3-D2) /SDCAS
(3-D2) /SDWDE
(3-D2) DQM0
(5-B1) MM_Y3
(5-B1) MM_Y2
(5-B1) MM_Y1
(6-B3) MM_PH_B
(6-B3) MM_BI0
(6-B3) MM_BI1
(6-B3) MM_PH_A
(6-B3) MM_AI0
(6-B3) MM_AI1
/RESET0 (1-B1) (3-B2)
JTG_TDO
JTG_TDI
JTG_TMS
JTG_TCK
/INREQ
/OUTCS
/OUTACK
/ESPRD
/FAXPRO
/PCLPRO
/PCLPRO
/FAXPRO
/OUTACK
/INREQ
JTG_TCK
JTG_TMS
JTG_TDI
JTG_TDO
/OUTCS
CLPWM
VCC(AC)
AFE_DB0
AFE_DB1
AFE_DB2
AFE_DB3
AFE_DB4
AFE_DB5
AFE_DB6
AFE_DB7
GND(AC)
AFESCK
VCC(CORE)
ADCLK
GND(CORE)
AFE_SEN
CCD_PH1
CCD_PH2
AFE_SDI
BSAMP
CCD_CP
CCD_RS
CCD_TG
VSAMP
GND(CORE)
TDO
TDI
TRSK
TMS
TCK
VCC(CORE)
/INREQ
/OUTCS
/OUTACK
/ESPRD
/FAXPRO
/PCLPRO
GND(AC)
MDAT15
MDAT14
MDAT13
VCC(CORE)
MDAT12
MDAT11
MDAT10
VCC(AC)
MDAT09
MDAT08
GND(CORE)
MM_Y3
MM_Y2
MM_Y1
VCC(CORE)
MM_PH_B
MM_BI0
MM_BI1
MM_BI2
MM_PH_A
MM_AI0
MM_AI1
MM_AI2
GND(AC)
RAM_MAD3
RAM_MAD2
GND(CORE)
RAM_MAD1
RAM_MAD0
RAM_MAD10
VCC(CORE)
RAM_BANKS1
RAM_BANKS0
RAM_CS
RAM_RAS
RAM_CAS
VCC(AC)
RAM_WDE
RAM_DQM0
GND(AC)
RAM_DATA7
RAM_DATA6
RAM_DATA5
RAM_DATA4
GND(CORE)
RAM_DATA3
RAM_DATA2
RAM_DATA1
RAM_DATA0
GND(AC)
RAM_DATA15
RAM_DATA14
VCC(CORE)
RAM_DATA13
RAM_DATA12
RAM_DATA11
RAM_DATA10
RAM_DATA9
RAM_DATA8
VCC(CORE)
RAM_DQM1
RAM_CKE
GND(AC)
RAM_CLK_OUT
GND(CORE)
RAM_MAD12
RAM_MAD11
RAM_MAD9
VCC(CORE)
RAM_MAD8
RAM_MAD7
VCC(AC)
RAM_MAD6
RAM_MAD5
RAM_MAD4
GND(AC)
CPUDATA15
CPUDATA14
CPUDATA13
CPUDATA12
CPUDATA11
CPUDATA10
CPUDATA9
CPUDATA8
CPU_DATA7
CPU_DATA6
CPU_DATA5
CPU_DATA4
VCC(AC)
CPU_DATA3
CPU_DATA2
CPU_DATA1
CPU_DATA0
GND(AC)
MIRQNT
/CPUSYNC
MEM_INT
ARB_INT
VCC(CORE)
CPU_AD8
CPU_AD7
CPU_AD6
CPU_AD5
GND(CORE)
RAM_CLK_IN
CPU_AD4
CPU_AD3
CPU_AD2
CPU_AD1
CPU_AD0
/CPUCS
SFCLK48
GND(CORE)
/CPUWR
/CPURD
/RESET
VCC(CORE)
PFCLK
CLKSW
GND(CORE)
PFCLKOUT
PFCLKIN
GND(PLL)
VCC(PLL)
GND(PLL)
TM1
TM2_SM
/SYNC
GND(AC)
/VIDEO
/LEND
VCC(AC)
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
MEM_INT
A9
A8
A7
A6
RAM_CLK_OUT
A5
A4
A3
A2
A1
SFCLK48
/CS2
PFCLK
CLKSW
PFCLKOUT
PFCLKIN
SYNC#
/LWR
/LRD
/RESET
(1-A2)
(1-B3)
(1-B2)
(13-B2) (3-A2)
(8-A1) (1-B1) (/ASIC_RST)
(9-B2)
MIRQNT
CPU_SYNC
(4-C3)
(1-D2)
ARB_INT
(1-D2)
VIDEO#
/LEND
(4-C1)
(5-B1)
(13-C2)(4-A2)
(3-A1) (1-D2) D[15..0]
(3-A3) (1-C1) A[19..0]
VCC3
L3
ZJSR5101-223
X2
VCC
OUTPUT
N.C.
GND
OSC-31
48MHz
SFCLK48
C66 2200p
C67 0.1u
C68 12p
C69 12p
HC-49U/S (16.1511MHz)
X3
C70 12p
R44 0J
R45 0J
PFCLKIN
PFCLKOUT
R351 33J
C397 0.1u
R43 33J
RAM_CLK_OUT
BR23 33J
BR24 33J
BR25 33J
BR26 33J
BR27 33J
BR30 33J
BR29 10kJ
BR31 10kJ
R32 10kJ
BR33 10kJ
R33 10kJ
R34 10kJ
BR39 33J
BR41 33J
BR43 33J
BR45 33J
BR49 33J
BR52 33J
BR56 33J
BR60 82J
BR62 33J
BR63 33J
BR48 10kJ
BR53 10kJ
BR57 10kJ
BR61 10kJ
C47 47p
C48 47p
C49 47p
C50 47p
C51 47p
C52 47p
C53 47p
C54 47p
BR2
/PCLPRO
/FAXPRO
/OUTACK
/INREQ
BR9
JTG_TCK
JTG_TMS
JTG_TDI
JTG_TDO
/OUTCS

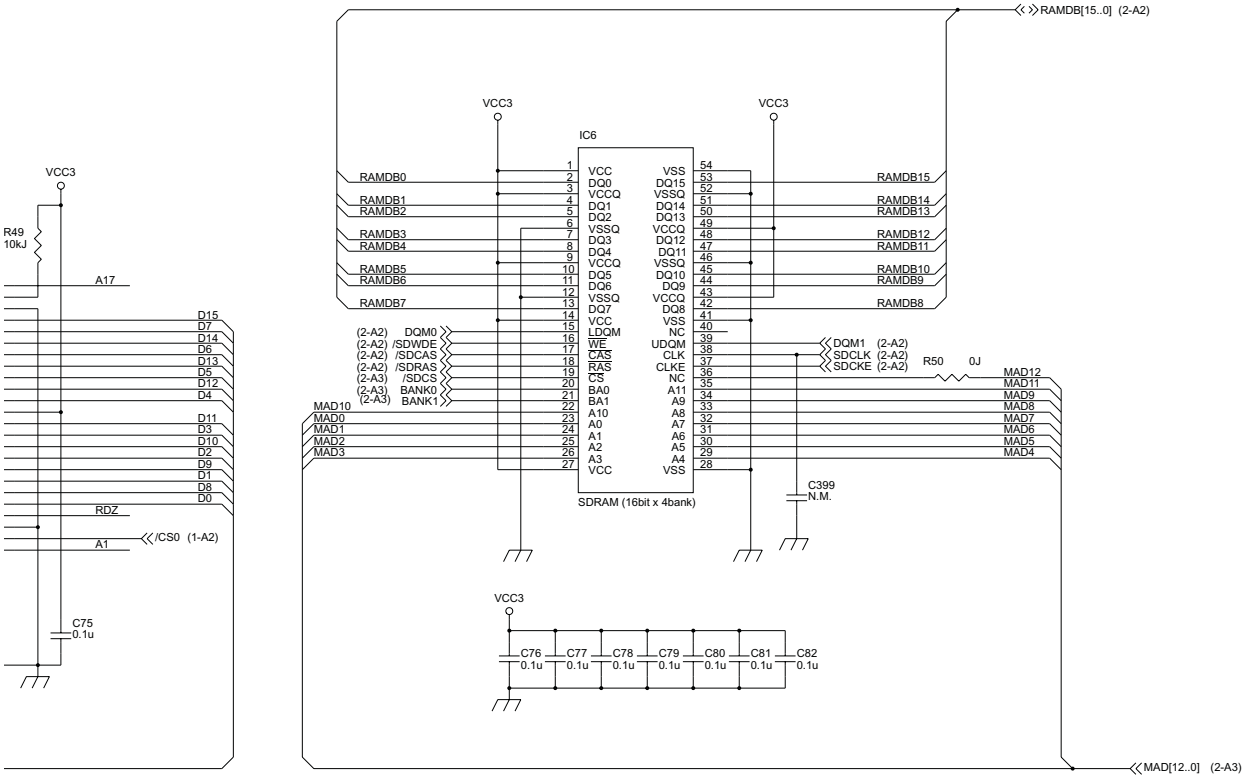

VCC3
BR25 10KJ
BR93 10KJ
R28
10KJ
L2
ZJSR5101-102TA
G3.3V
C36
47u/16V
0.1u
C26 C27 C28 C29 C30 C31 C32 C33 C34 C35
C37 C38 C39 C40 C41 C42 C43 C44 C45 C46
C55 C56 C57 C58 C59 C60 C61 C62 C63 C64
C65
PIDATA[7..0] (8-A4)
PIDATA0
PIDATA1
PIDATA2
PIDATA3
PIDATA4
PIDATA5
PIDATA6
PIDATA7
BR26 33J
BR28 33J
/H_SYNC (8-A2)
G3.3V
VCC(AC)
MDAT09
MDAT08
MDAT07
GND(CORE)
MDAT06
MDAT05
MDAT04
VCC(CORE)
MDAT03
MDAT02
MDAT01
MDAT00
GND(AC)
/INCS
/INACK
/OUTREQ
GND(CORE)
/HSYNC
/VSYNC
PIDATA0
PIDATA1
PIDATA2
VCC(AC)
PIDATA3
PIDATA4
PIDATA5
PIDATA6
PIDATA7
/POCS
/POREQ
VCC(AC)
/PIWT
/PIACK
GND(AC)
/POACK
/PIREQ
GND(CORE)
PODATA0
PODATA1
PODATA2
PODATA3
PODATA4
PODATA5
PODATA6
PODATA7
VCC(CORE)
/TRANSST
/RECEPTST
/PRINTST
/SCANST
RCV
VPIN
VMIN
GND(CORE)
VPOUT
VMOUT
OEN
GND(AC)
SUSPEND
IE1284_PARAD0
IE1284_PARAD1
VCC(AC)
IE1284_PARAD2
IE1284_PARAD3
IE1284_PARAD4
IE1284_PARAD5
IE1284_PARAD6
IE1284_PARAD7
IE1284_REV
VCC(CORE)
IE1284_FAULT
IE1284_ACK
IE1284_BUSY
IE1284_PE
GND(CORE)
IE1284_SLCT
IE1284_INIT
IE1284_SLCTIN
VCC(CORE)
IE1284_AUTOFD
IE1284_STB
TSP_MODE
TSO0
/SCANSP
VCC(AC)
OPE_CLK
GND(AC)
OPE_LATCH
OPE_DATA
TM
/TM
VCC(CORE)
OUTP14B
OUTP13B
OUTP12B
OUTP11B
OUTP10B
OUTP09B
OUTP08B
GND(CORE)
OUTP07B
OUTP06B
OUTP05B
BR32 33J
BR34 33J
BR44 33J
BR47 33J
BR51 33J
BR55 33J
BR58 33J
/POREQ (8-A2)
/PIWR (8-A4)
/PIACK (8-A4)
/POACK (8-A2)
/PIREQ (8-A4)
PODATA[7..0] (8-A2)
R35
10kJ
R310 10J
R311 10J
/PR_LINE (8-A2)
/SC_LINE (8-A2)
/TRANSST(1-A2)
/PRINTST (1-B3)
/SCANST (1-A2)
RCV
VPIN
VMIN
PARAD0
PARAD1
PARAD2
PARAD3
PARAD4
PARAD5
PARAD6
PARAD7
/REV (12-A3)
/FAULT (12-A3)
/ACK (12-A3)
BUSY (12-A3)
PE (12-A3)
SLCT (12-A3)
/INIT (12-A3)
/SLCTIN (12-A3)
/AUTOF D (12-A3)
/STB (12-A3)
PARAD[7..0] (12-A3)
/SCANSP (4-C3)
OP_CLK (4-C3)
OP_LATCH (4-C3)
OP_DATA (4-C3)
TM (4-C2)
TM_ (4-C2)
/IMC_READY (8-A2)
KEYSC3 (4-C2)
KEYSC2 (4-C2)
KEYSC1 (4-C2)
SPFON (4-C2)
MIRON (4-C2)
MPFS (5-B3)
HL (5-B2)
PR (5-B3)
CPFS2 (5-B3)
R37 10kJ
R38 OPEN
R39 OPEN
R40 OPEN
R41 10kJ
R42 10kJ
PFCLK
BR35 10kJ
MEM_INT
CLKSW
/POREQ
/PIREQ
BR37 10kJ
PODATA0
PODATA1
PODATA2
PODATA3
BR40 10kJ
PODATA4
PODATA5
PODATA6
PODATA7
BR46 10kJ
RCV
VPIN
VMIN
BR50 10kJ
PARAD0
PARAD1
PARAD2
PARAD3
BR54 10kJ
PARAD4
PARAD5
PARAD6
PARAD7
BR59 10kJ
/INIT
/SLCTIN
/AUTOF D
/STB
/VIDEO
/LEND
VCC(AC)
OUTP00A
OUTP01A
OUTP02A
OUTP03A
OUTP04A
OUTP05A
OUTP06A
OUTP15A
VCC(CORE)
OUTP07A
OUTP08A
GND(CORE)
OUTP09A
OUTP10A
OUTP11A
OUTP12A
OUTP13A
VCC(CORE)
OUTP14A
OUTP00B
GND(AC)
OUTP01B
OUTP02B
OUTP03B
OUTP04B
VCC(AC)
VCC3
R352 33J
(/ASIC_RST)
R353 N.M.
/RESET1
R354 N.M.
R358 10kJ
R355 N.M.
/FWREN
C398 47p
/OA_RST (9-B2)
SYNC#
R46 10J
(/SYNC) (4-D4)
C71 47p
/VIDEO (5-B1)
/LEND (5-B1)
MMD (5-B1)
PMD (5-B1)
TC (5-B4)
GRID (5-B4)
MC (5-B4)
BIAS (5-B4)
VFMCNT (5-B3)
VFM (5-B3)
/FPOFF (5-B3)
DEVDIR (4-A1)
SPFS
SRRC
SSCS
SPUS
RRS (5-B3)
LDEN (5-B2)
MRPS1 (5-B2)
MRPS2 (5-B2)
MRPS3 (5-B2)
CPFS1 (5-B3)

MCU PWB (Memory section)



Flash ROM

IC7	LH28F400BVE-BL85	
R51	OPEN	

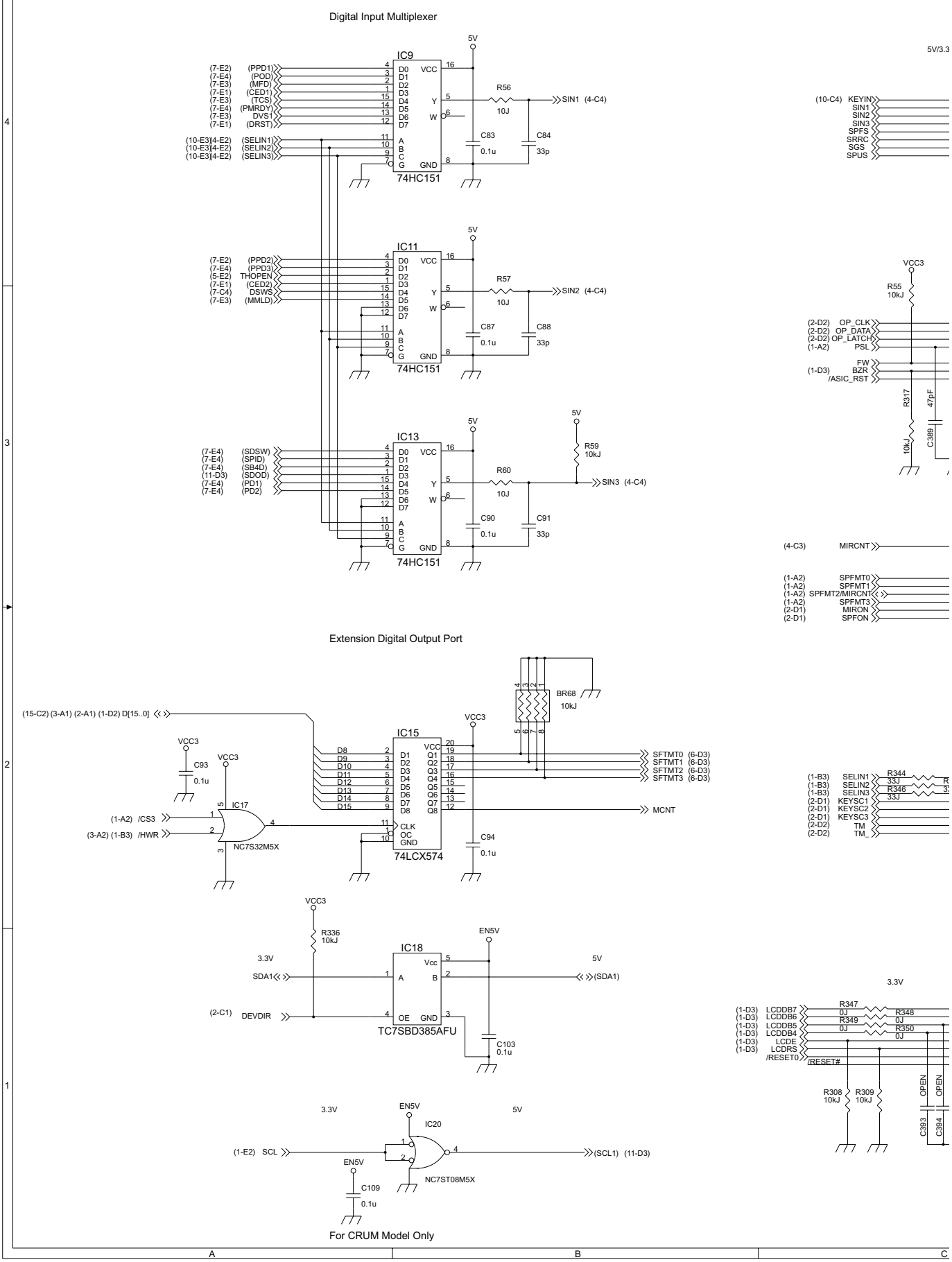


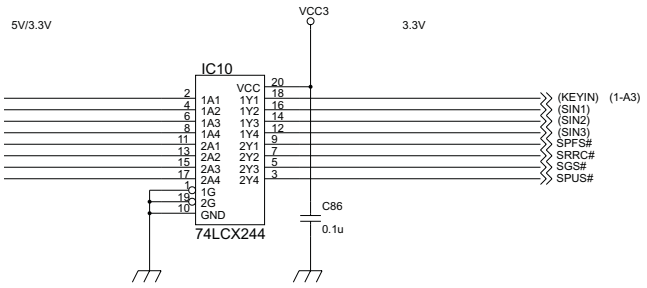
5	LH28F800BJE-PBTL90
	0J

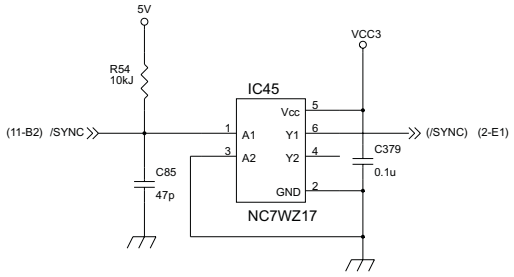
IC6

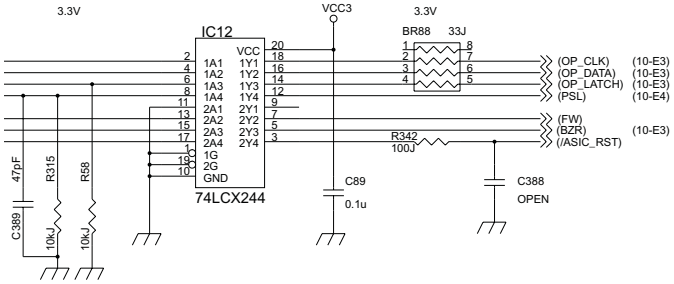
SDRAM	Vendor/Type
128Mb(2Mx16bitx4bank)	MT48LC8M16A2TG-75(Micron) HY57V281620HCT(Hyndai) K4S281632E-TC75(Samsung) W981216BH-75(Winbond)
64Mb(1Mx16bitx4bank)	HY57V641620HGT-P （ Hyndai) MT48LC4M16A2TG-75 （ Micron) K4S641632F-TC75(Samsung) K4S641632E-TC1H(Samsung) W986416DH-7(Winbond)

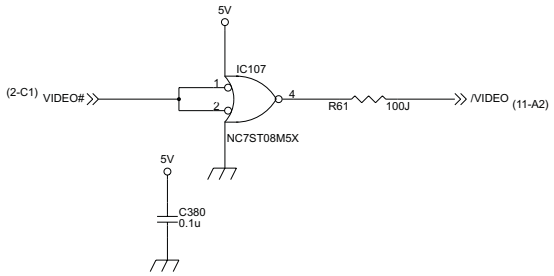
MCU PWB (Driver section 1)

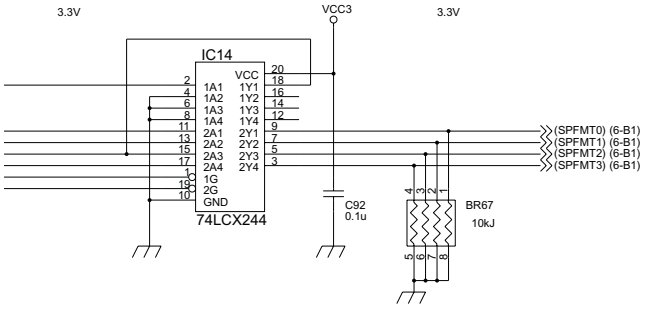


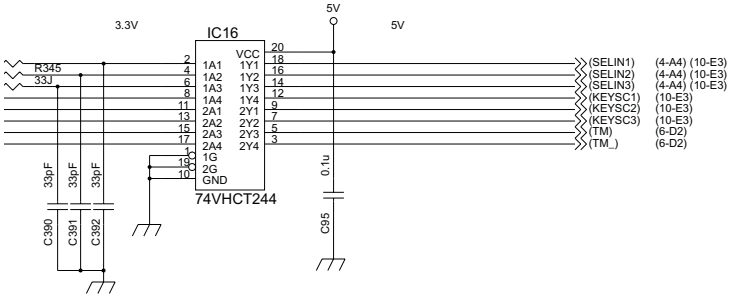

5V/3.3V
VCC3
3.3V
IC10
74LCX244
(KEYIN) (1-A3)
(SIN1)
(SIN2)
(SIN3)
SPFS#
SRRC#
SGS#
SPUS#
C86
0.1u

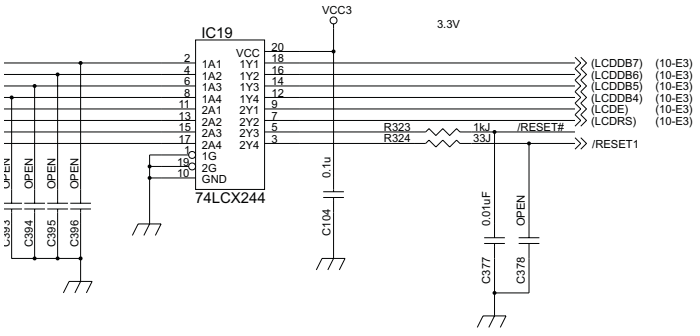

5V
R54
10kJ
VCC3
IC45
(11-B2) /SYNC
(/SYNC) (2-E1)
C85
47p
C379
0.1u
NC7WZ17


3.3V
VCC3
3.3V
IC12
BR88 33J
(OP_CLK) (10-E3)
(OP_DATA) (10-E3)
(OP_LATCH) (10-E3)
(PSL) (10-E4)
(FW)
(BZR) (10-E3)
(/ASIC_RST)
R342
100J
C89
0.1u
C388
OPEN
47pF
R315
R58
C389
10kJ
10kJ
74LCX244

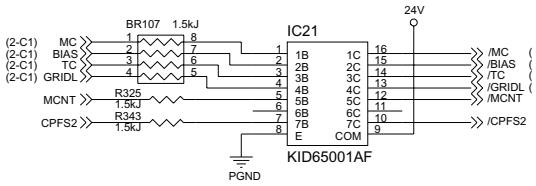

5V
IC107
(2-C1) VIDEO#
/VIDEO (11-A2)
R61
100J
NC7ST08M5X
5V
C380
0.1u

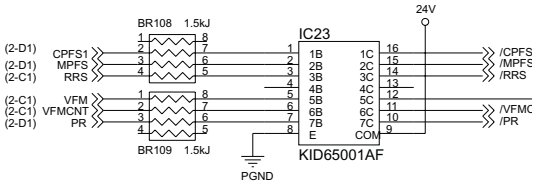

3.3V
VCC3
3.3V
IC14
(SPFMT0) (6-B1)
(SPFMT1) (6-B1)
(SPFMT2) (6-B1)
(SPFMT3) (6-B1)
C92
0.1u
BR67
10kJ
74LCX244

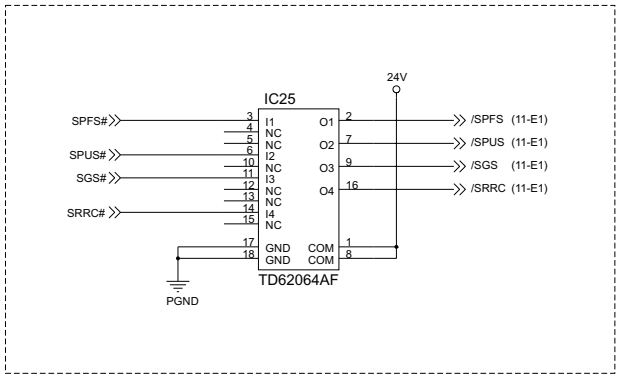

3.3V
5V
5V
IC16
R345
33J
(SELIN1) (4-A4) (10-E3)
(SELIN2) (4-A4) (10-E3)
(SELIN3) (4-A4) (10-E3)
(KEYSC1) (10-E3)
(KEYSC2) (10-E3)
(KEYSC3) (10-E3)
(TM) (6-D2)
(TM_) (6-D2)
33pF
33pF
33pF
C390
C391
C392
0.1u
C95
74VHCT244


VCC3
3.3V
IC19
(LCDDB7) (10-E3)
(LCDDB6) (10-E3)
(LCDDB5) (10-E3)
(LCDDB4) (10-E3)
(LCDE) (10-E3)
(LCDRS) (10-E3)
R323
1kJ
/RESET#
R324
33J
/RESET1
OPEN
OPEN
OPEN
OPEN
C393
C394
C395
C396
0.1u
C104
0.01uF
OPEN
C377
C378
74LCX244

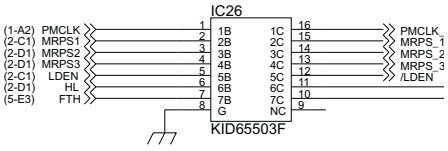
MCU PWB (Driver section 2)

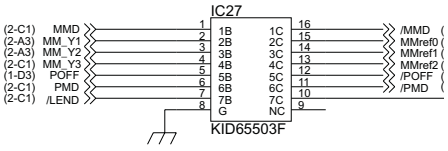


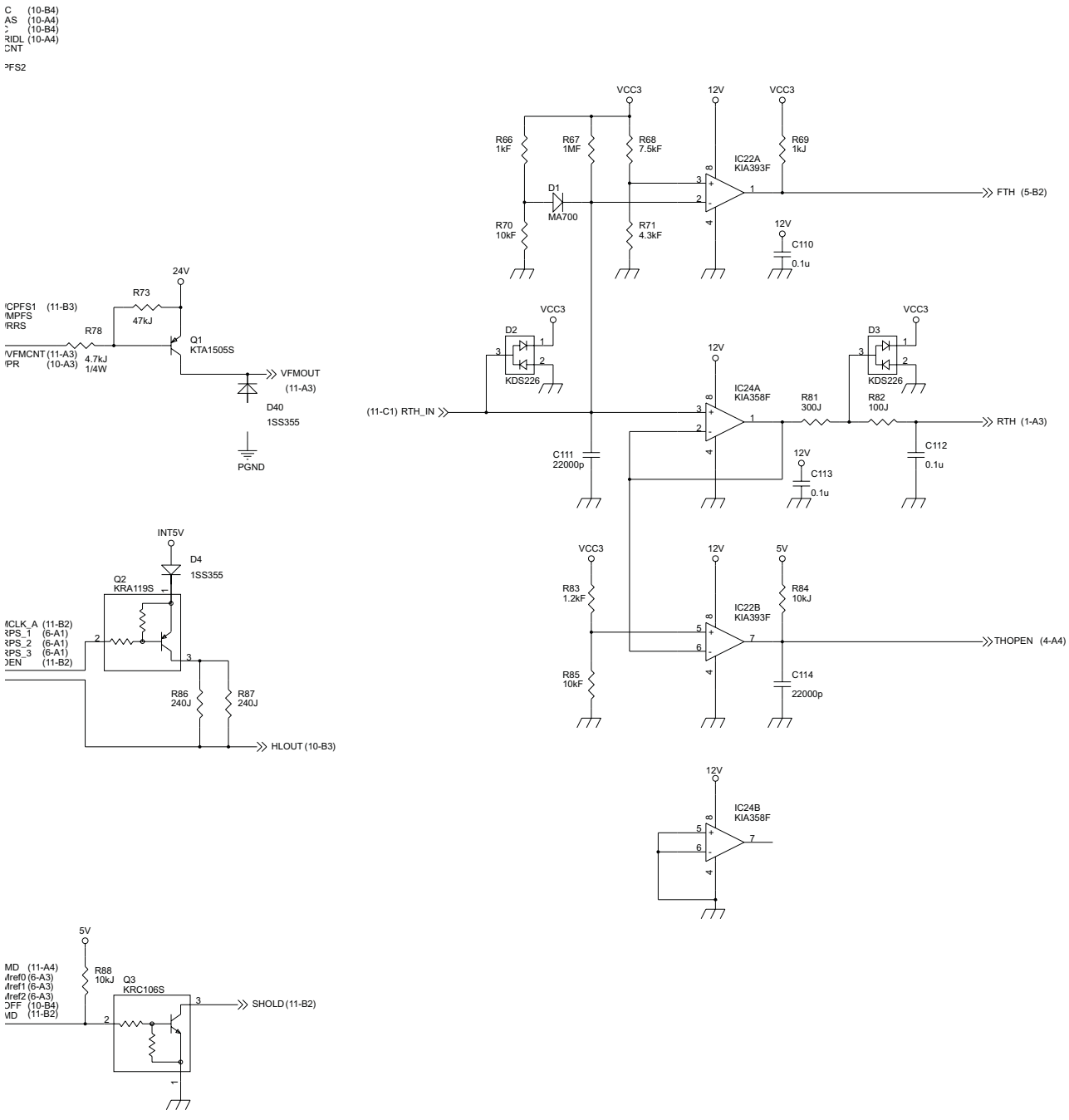




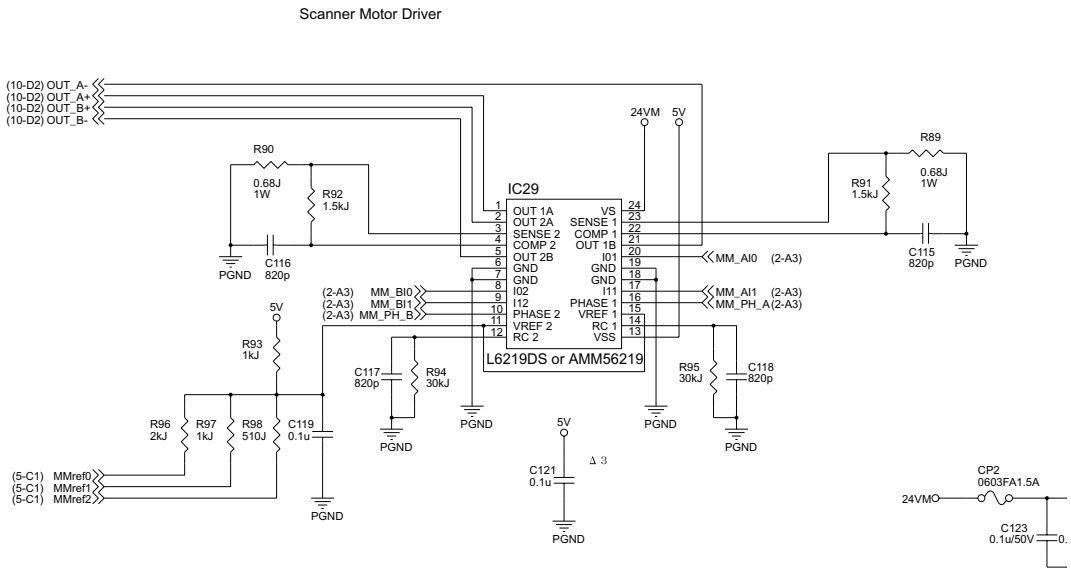
For SPF/DSPF Model Only

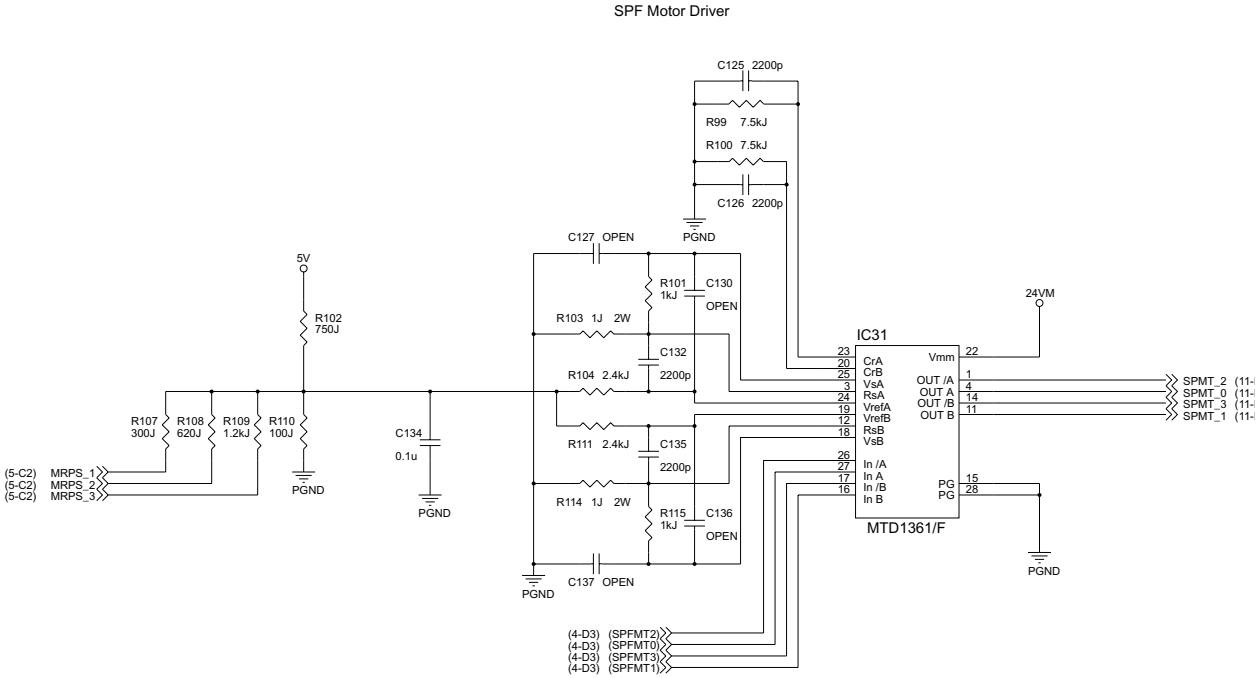




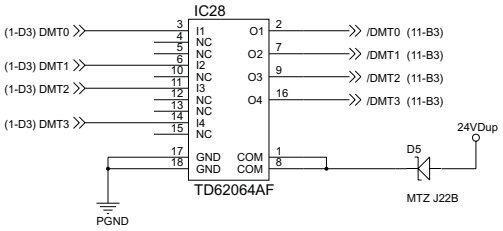

C (10-B4)
AS (10-A4)
(10-B4)
RIDL (10-A4)
CNT
PFS2
24V
R73
47kJ
CPFS1 (11-B3)
MPFS
RRS
R78
VFMCNT (11-A3)
PR (10-A3)
4.7kJ
1/4W
Q1
KTA1505S
VFMOUT
(11-A3)
D40
1SS355
PGND
INT5V
D4
1SS355
Q2
KRA119S
CLK_A (11-B2)
PS_1 (6-A1)
PS_2 (6-A1)
PS_3 (6-A1)
EN (11-B2)
R86
240J
R87
240J
HLOUT (10-B3)
5V
MD (11-A4)
/ref0 (6-A3)
/ref1 (6-A3)
/ref2 (6-A3)
FF (10-B4)
MD (11-B2)
R88
10kJ
Q3
KRC106S
SHOLD (11-B2)
VCC3
12V
VCC3
R66
1kF
R67
1MF
R68
7.5kF
R69
1kJ
IC22A
KIA393F
D1
MA700
FTH (5-B2)
R70
10kF
R71
4.3kF
12V
C110
0.1u
VCC3
D2
KDS226
12V
IC24A
KIA358F
(11-C1) RTH_IN
R81
300J
VCC3
D3
KDS226
R82
100J
RTH (1-A3)
C111
22000p
12V
C113
0.1u
C112
0.1u
VCC3
12V
5V
R83
1.2kF
IC22B
KIA393F
R84
10kJ
THOPEN (4-A4)
R85
10kF
C114
22000p
12V
IC24B
KIA358F

MCU PWB (Driver section 3)

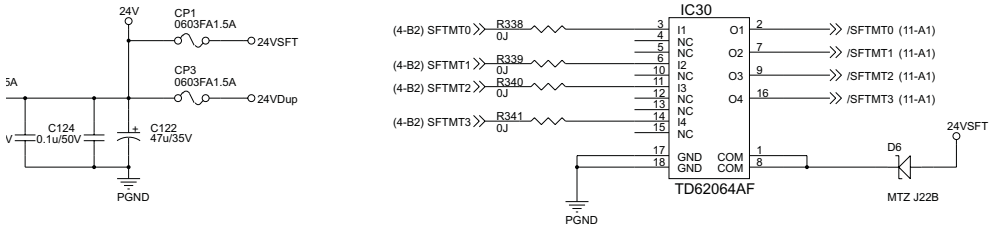




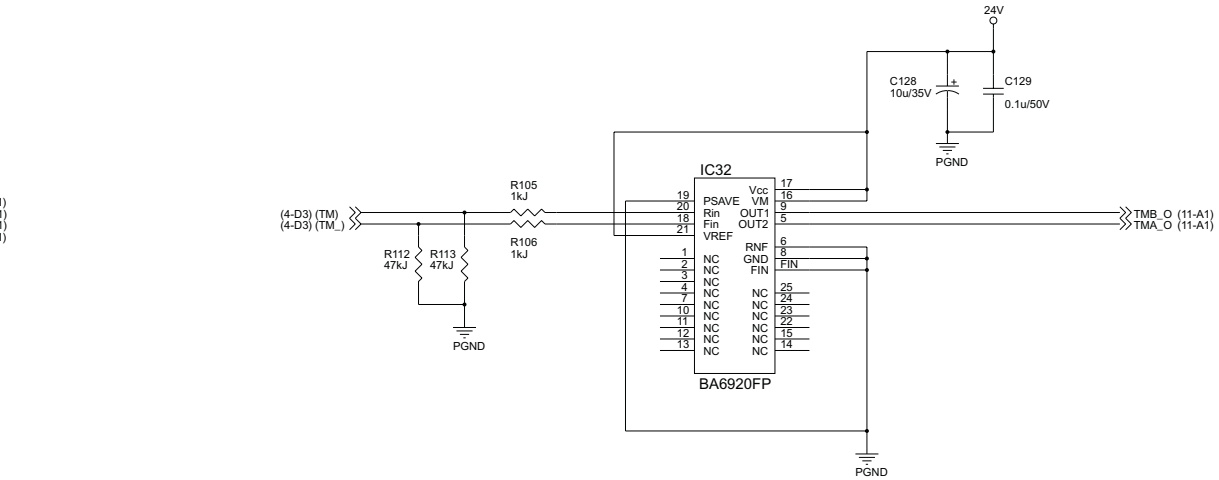
Duplex Motor Driver



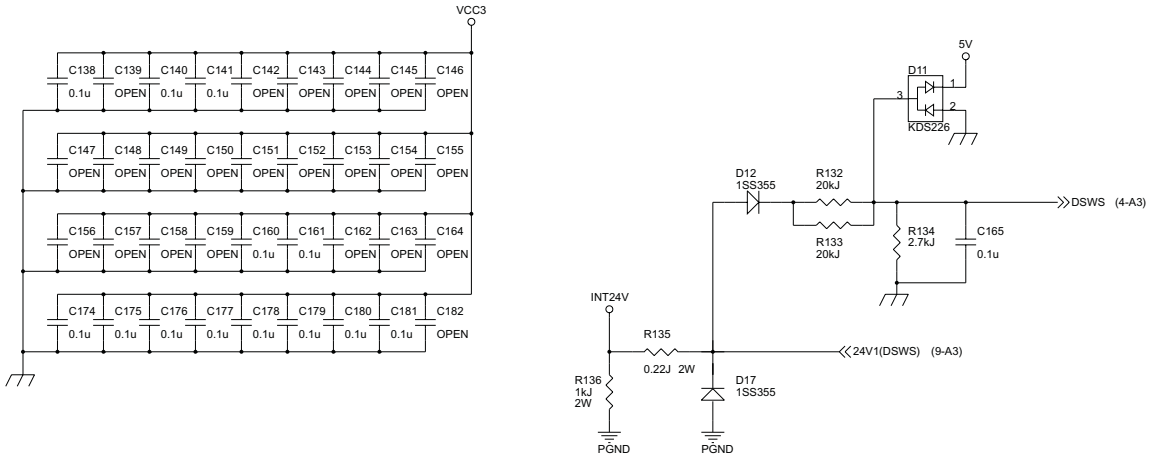
Shifter Motor Driver

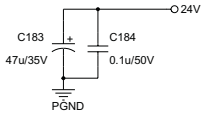


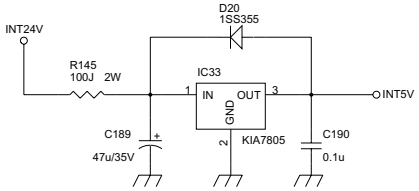
Toner Motor Driver

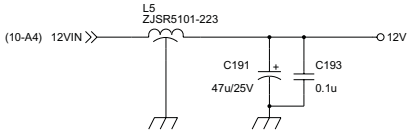


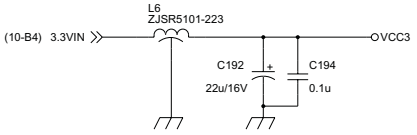
MCU PWB (Noise filter/Pull-up section)

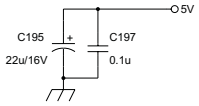


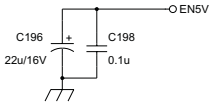


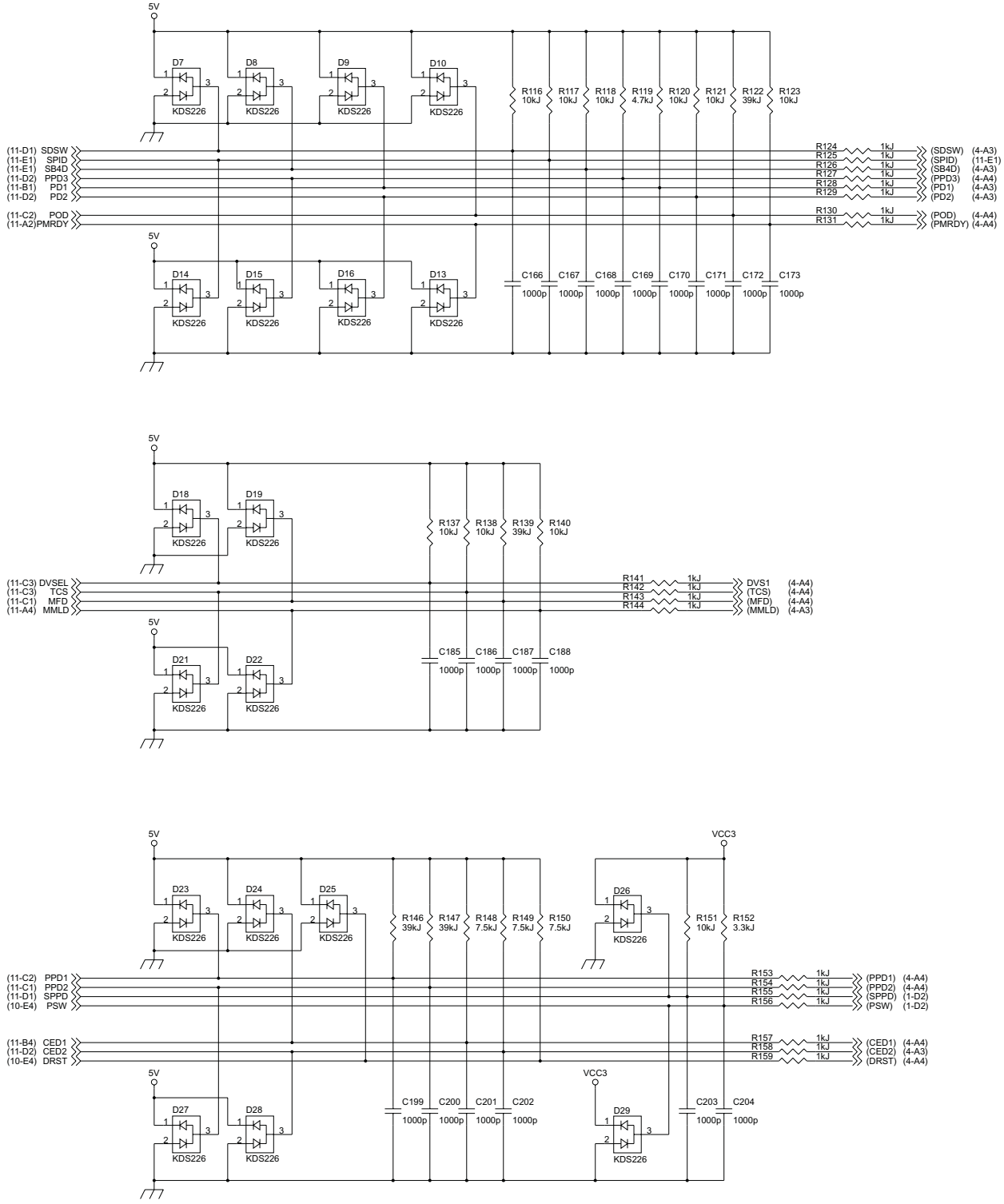




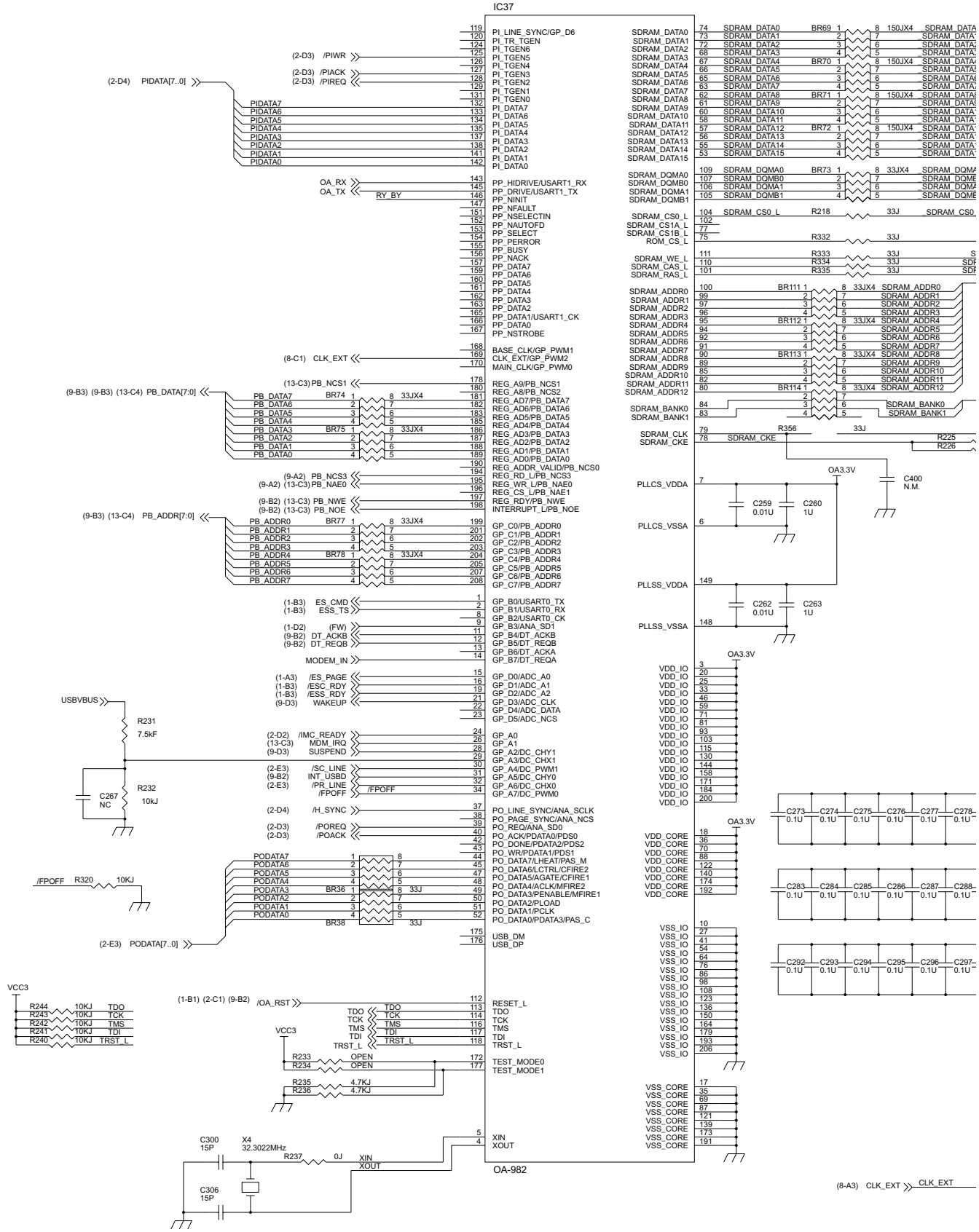


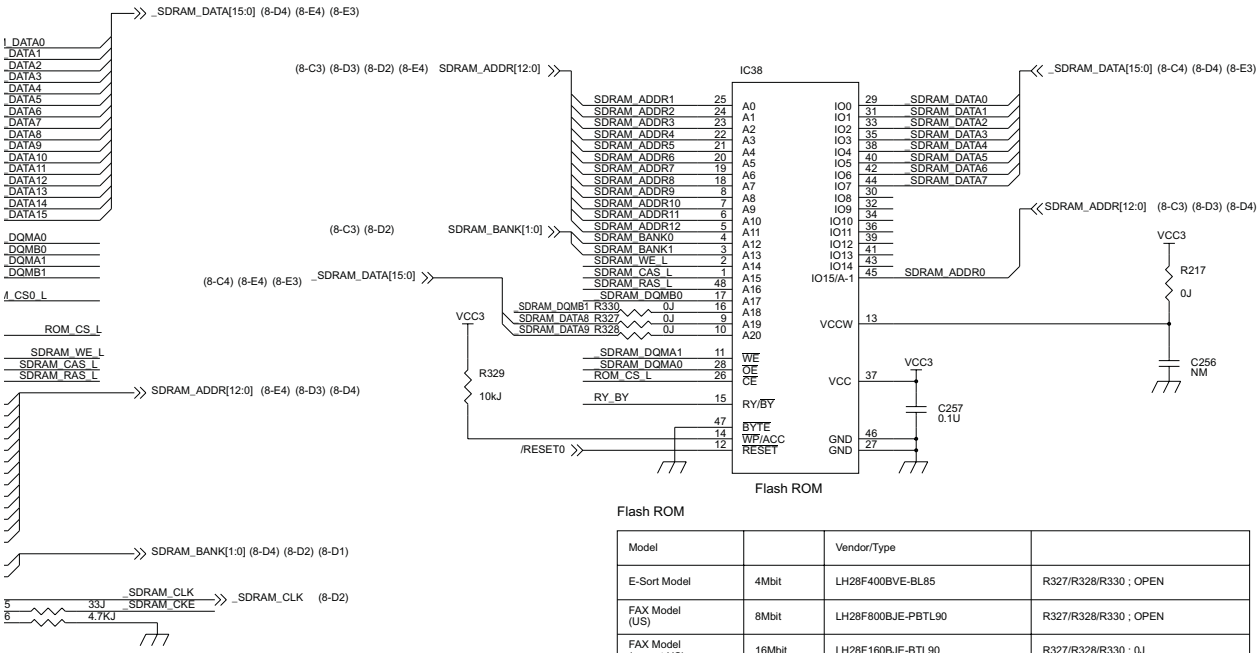





5V
D7
D8
D9
D10
KDS226
R116 10kJ
R117 10kJ
R118 10kJ
R119 4.7kJ
R120 10kJ
R121 10kJ
R122 39kJ
R123 10kJ
(11-D1) SDSW
(11-E1) SPID
(11-E1) SB4D
(11-D2) PPD3
(11-B1) PD1
(11-D2) PD2
(11-C2) POD
(11-A2)PMRDY
R124 1kJ (SDSW) (4-A3)
R125 1kJ (SPID) (11-E1)
R126 1kJ (SB4D) (4-A3)
R127 1kJ (PPD3) (4-A4)
R128 1kJ (PD1) (4-A3)
R129 1kJ (PD2) (4-A3)
R130 1kJ (POD) (4-A4)
R131 1kJ (PMRDY) (4-A4)
D14
D15
D16
D13
C166 1000p
C167 1000p
C168 1000p
C169 1000p
C170 1000p
C171 1000p
C172 1000p
C173 1000p
D18
D19
R137 10kJ
R138 10kJ
R139 39kJ
R140 10kJ
(11-C3) DVSEL
(11-C3) TCS
(11-C1) MFD
(11-A4) MMLD
R141 1kJ DVS1 (4-A4)
R142 1kJ (TCS) (4-A4)
R143 1kJ (MFD) (4-A4)
R144 1kJ (MMLD) (4-A3)
D21
D22
C185 1000p
C186 1000p
C187 1000p
C188 1000p
VCC3
D23
D24
D25
D26
R146 39kJ
R147 39kJ
R148 7.5kJ
R149 7.5kJ
R150 7.5kJ
R151 10kJ
R152 3.3kJ
(11-C2) PPD1
(11-C1) PPD2
(11-D1) SPPD
(10-E4) PSW
R153 1kJ (PPD1) (4-A4)
R154 1kJ (PPD2) (4-A4)
R155 1kJ (SPPD) (1-D2)
R156 1kJ (PSW) (1-D2)
(11-B4) CED1
(11-D2) CED2
(10-E4) DRST
R157 1kJ (CED1) (4-A4)
R158 1kJ (CED2) (4-A3)
R159 1kJ (DRST) (4-A4)
D27
D28
D29
C199 1000p
C200 1000p
C201 1000p
C202 1000p
C203 1000p
C204 1000p

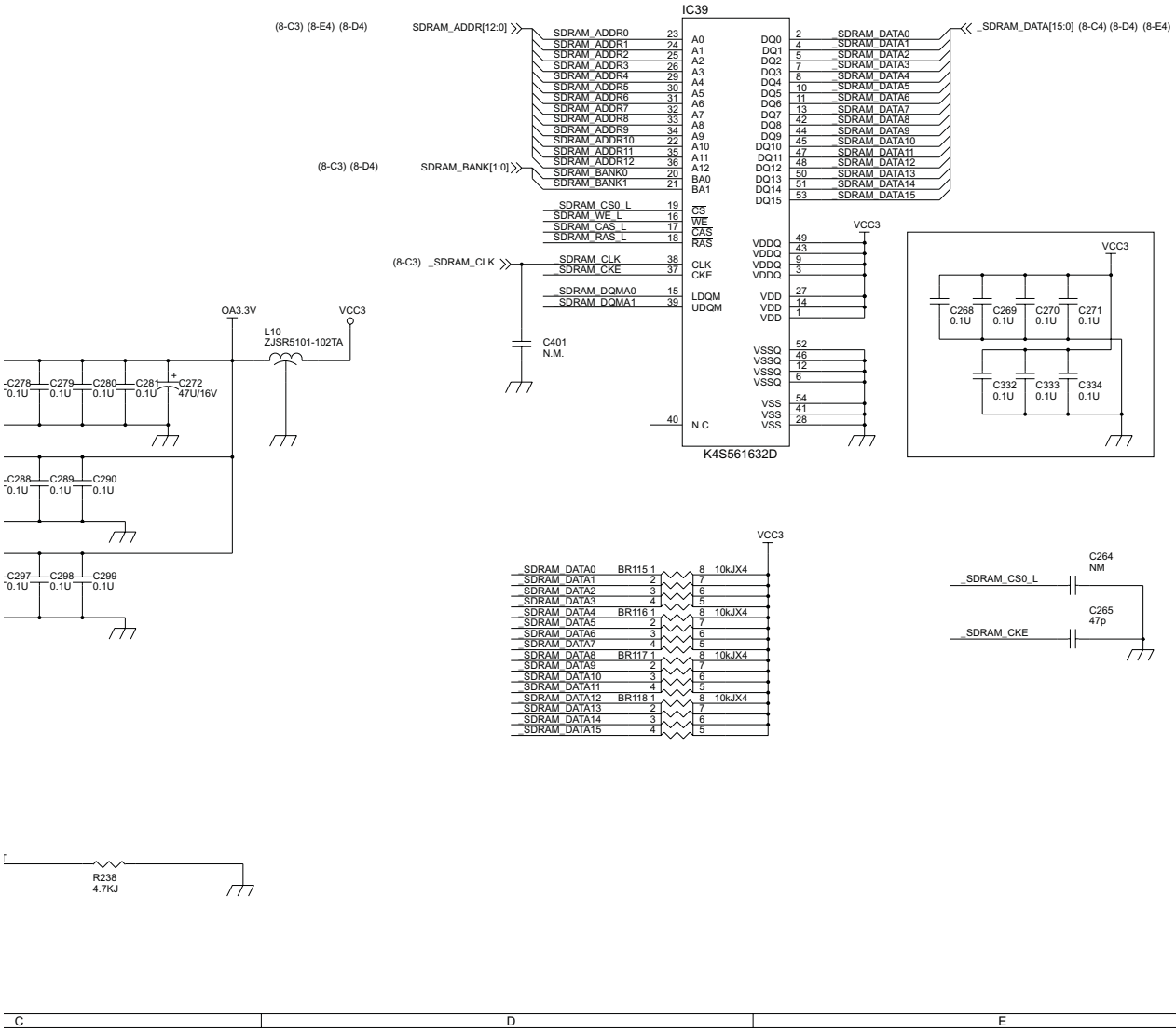
MCU PWB (IMC2 section 1/2)



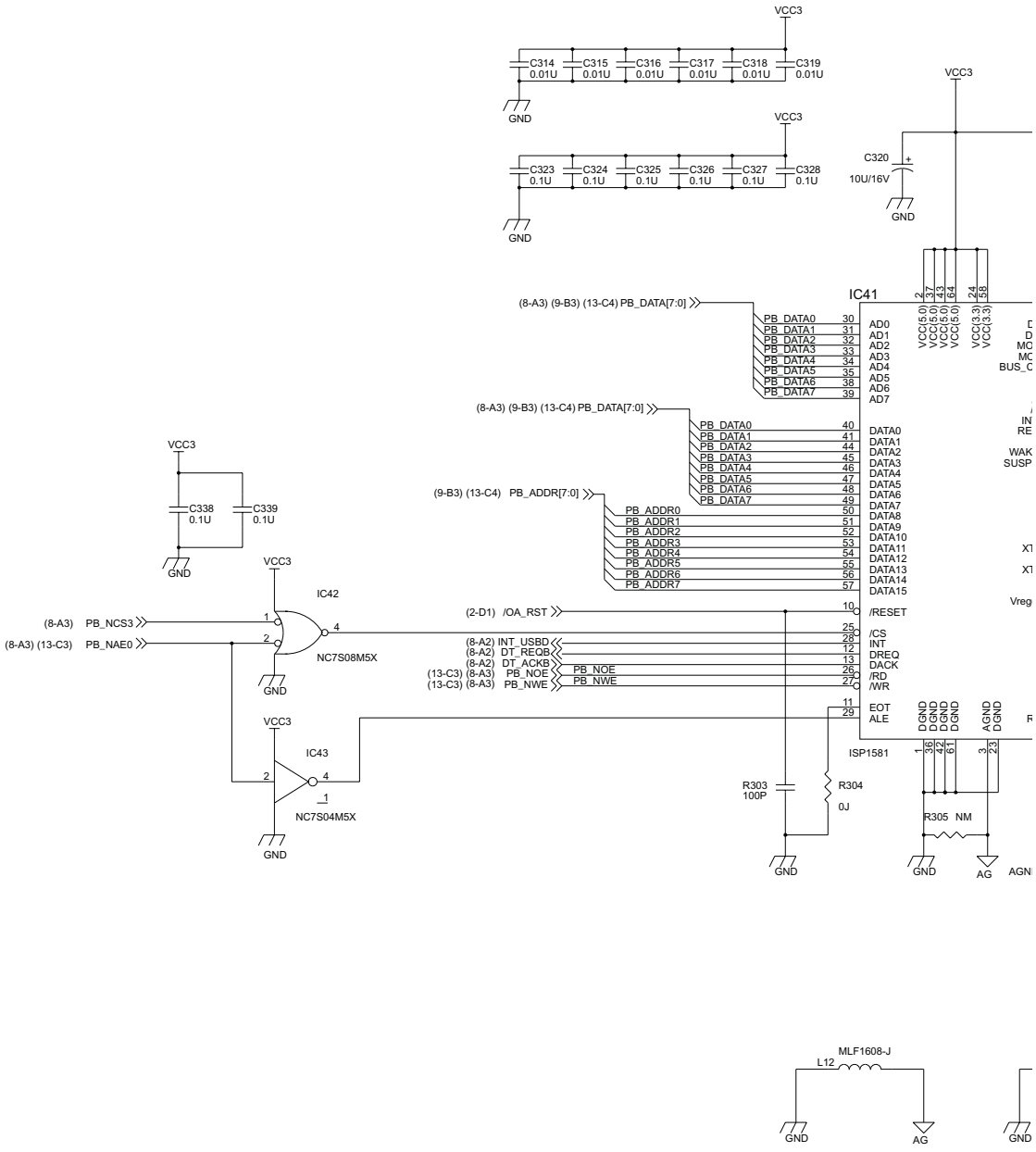


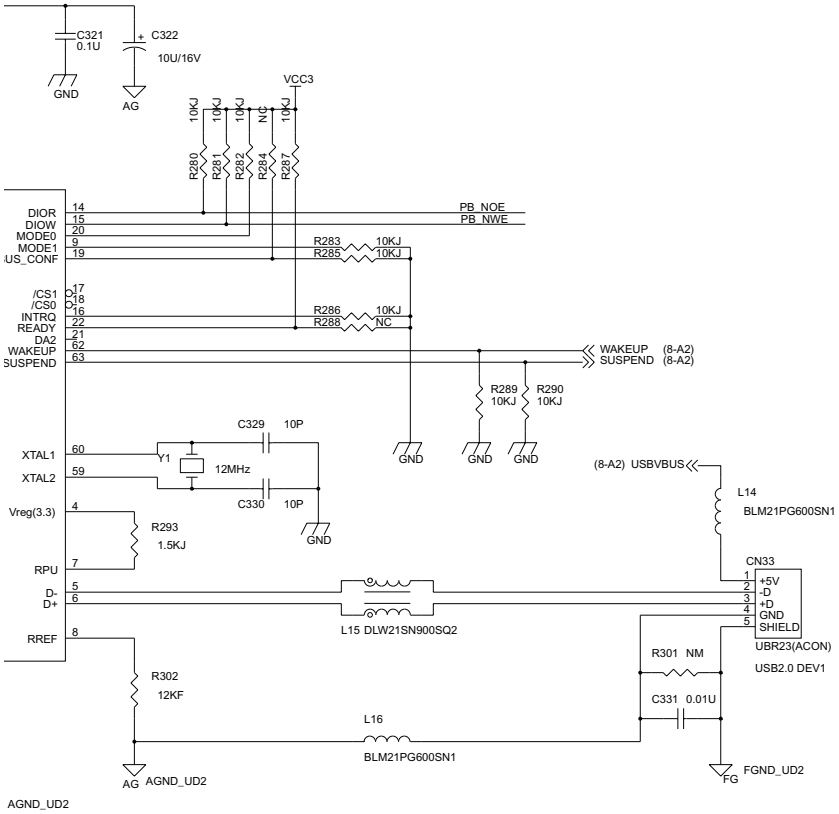
Flash ROM

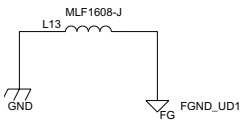
Model		Vendor/Type	
E-Sort Model	4Mbit	LH28F400BVE-BL85	R327/R328/R330 ; OPEN
FAX Model (US)	8Mbit	LH28F800BJE-PBTL90	R327/R328/R330 ; OPEN
FAX Model (except US)	16Mbit	LH28F160BJE-BTL90	R327/R328/R330 ; 0J



MCU PWB (IMC2 USB2.0 section 2/2)

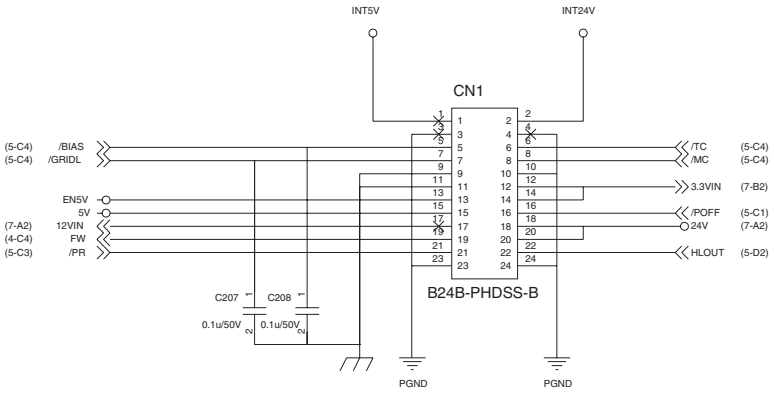



C321
0.1U
C322
10U/16V
GND
AG
VCC3
10KJ
10KJ
10KJ
NC
10KJ
R280
R281
R282
R284
R287
DIOR
DIOW
MODE0
MODE1
US_CONF
14
15
20
9
19
PB_NOE
PB_NWE
R283
10KJ
R285
10KJ
/CS1
/CS0
INTRQ
READY
DA2
WAKEUP
SUSPEND
17
18
16
22
21
62
63
R286
10KJ
R288
NC
WAKEUP (8-A2)
SUSPEND (8-A2)
R289
10KJ
R290
10KJ
C329 10P
XTAL1
XTAL2
60
59
Y1
12MHz
C330 10P
GND
GND
GND
GND
(8-A2) USBVBUS
L14
BLM21PG600SN1
Vreg(3.3)
4
R293
1.5KJ
RPU
7
D-
D+
5
6
L15 DLW21SN900SQ2
CN33
1 +5V
2 -D
3 +D
4 GND
5 SHIELD
UBR23(ACON)
USB2.0 DEV1
RREF
8
R302
12KF
R301 NM
C331 0.01U
L16
BLM21PG600SN1
AG AGND_UD2
FG FGND_UD2
AGND_UD2

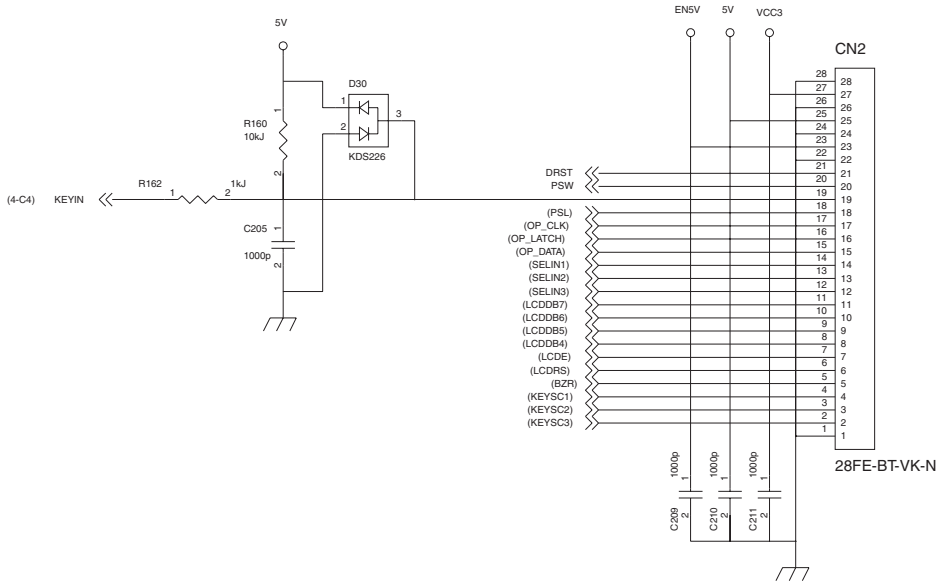

MLF1608-J
L13
GND
FG FGND_UD1

MCU PWB (Connector section 1)

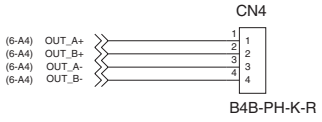
To Power unit



To Operational PWB

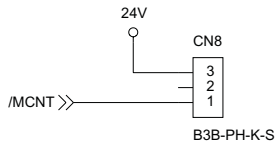


To Mirror motor

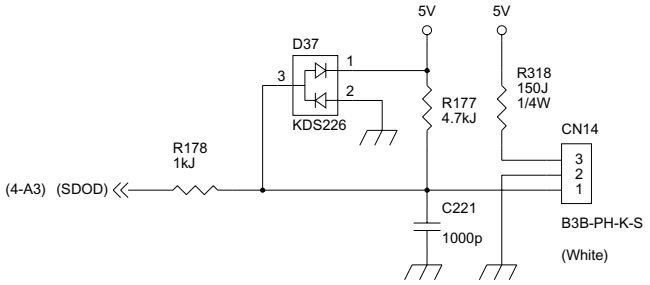


MCU PWB (Connector section 3)

To Mech. COUNTER



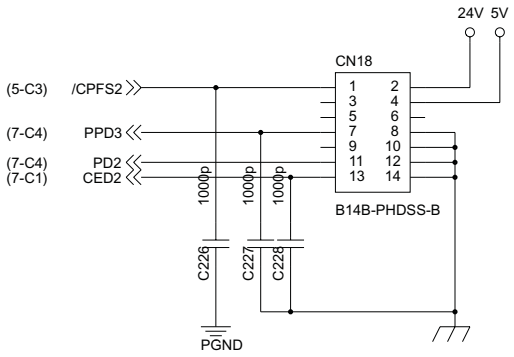
To Cover open detect



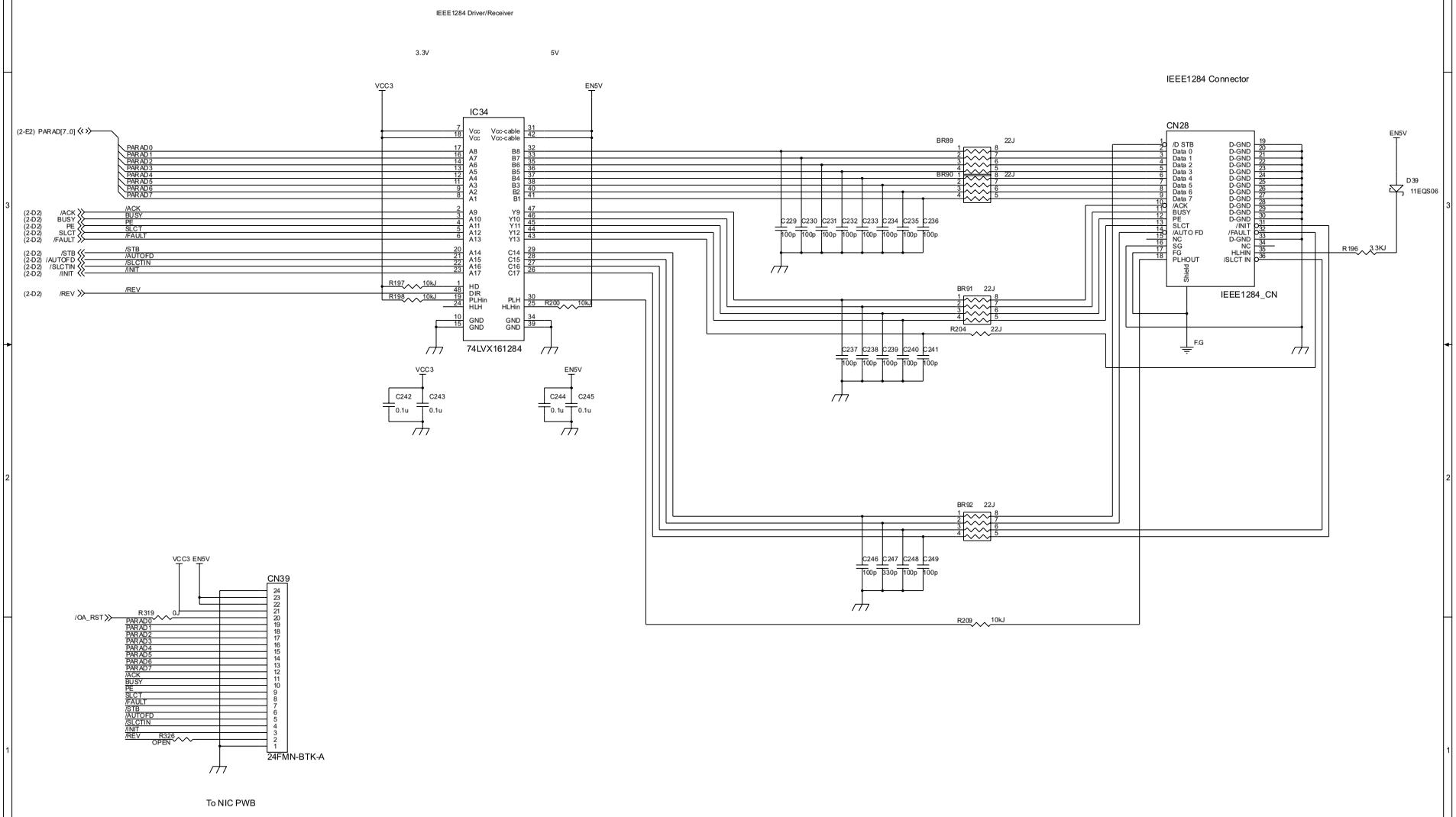
For SPF/DSPF Model Only

11/14

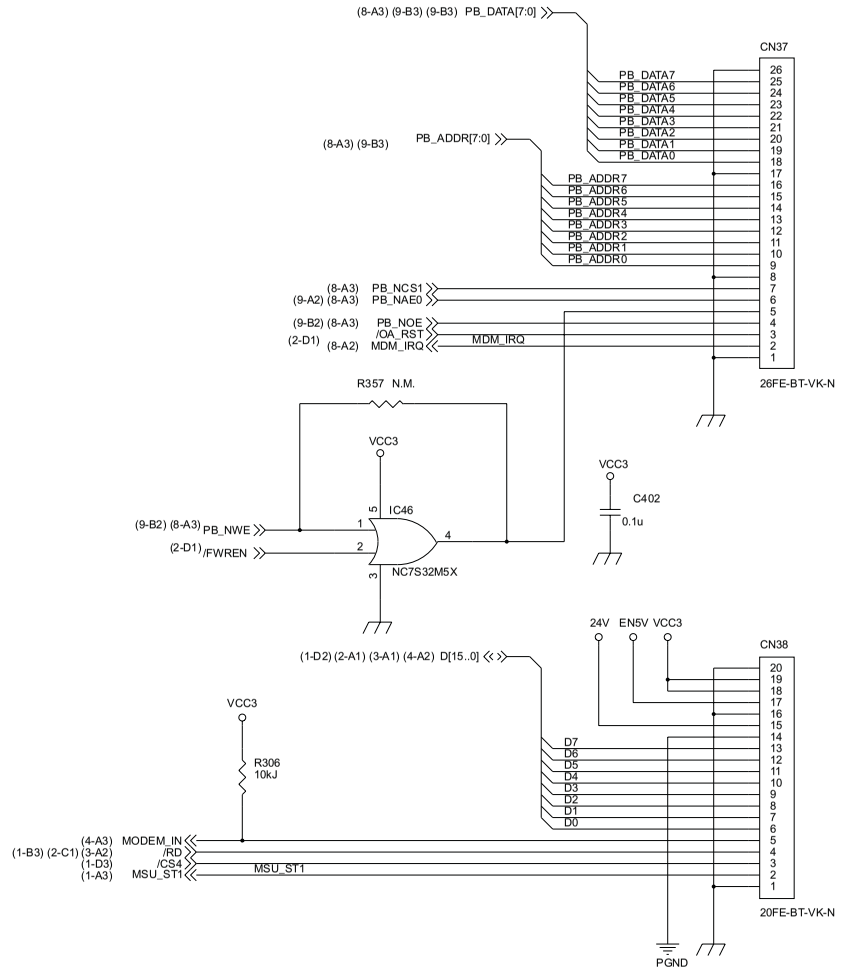
To 2nd. cassette



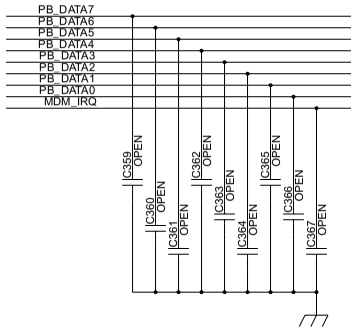
MCU PWB (IEEE1284Interface section)



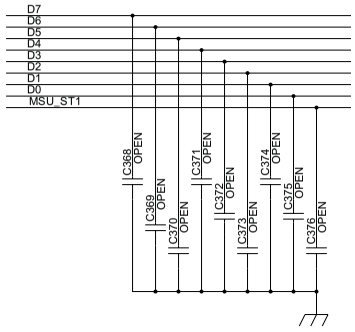
MCU PWB (Modem I/F Connector)



To Modem PWB

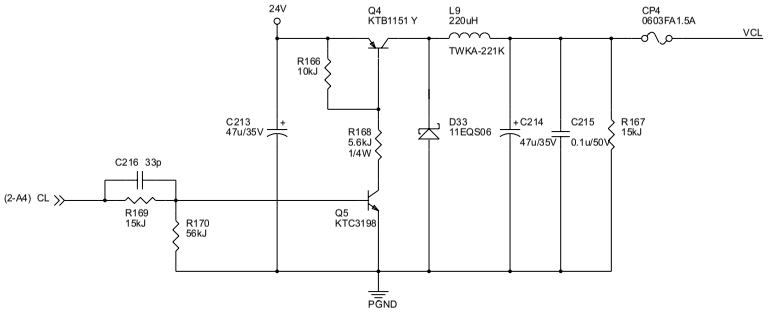


To Modem PWB

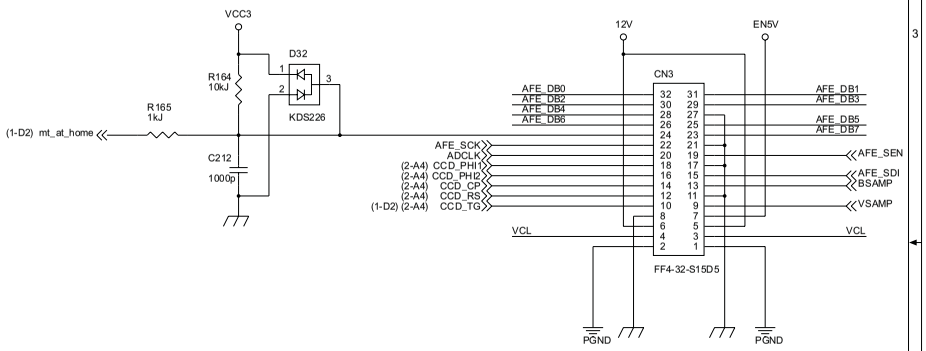


MCU PWB (Scanner I/F section)

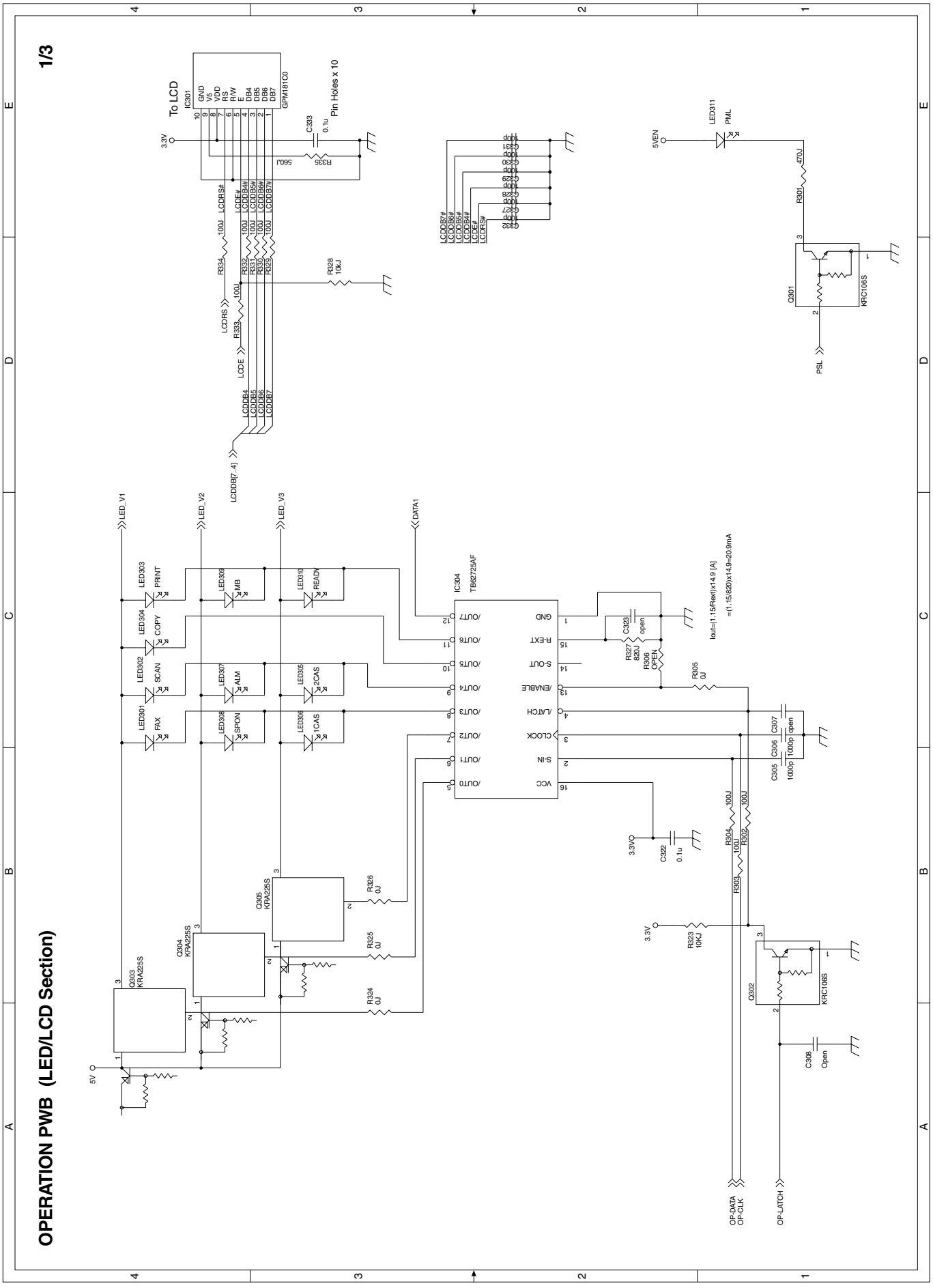
Copy Lamp Inverter

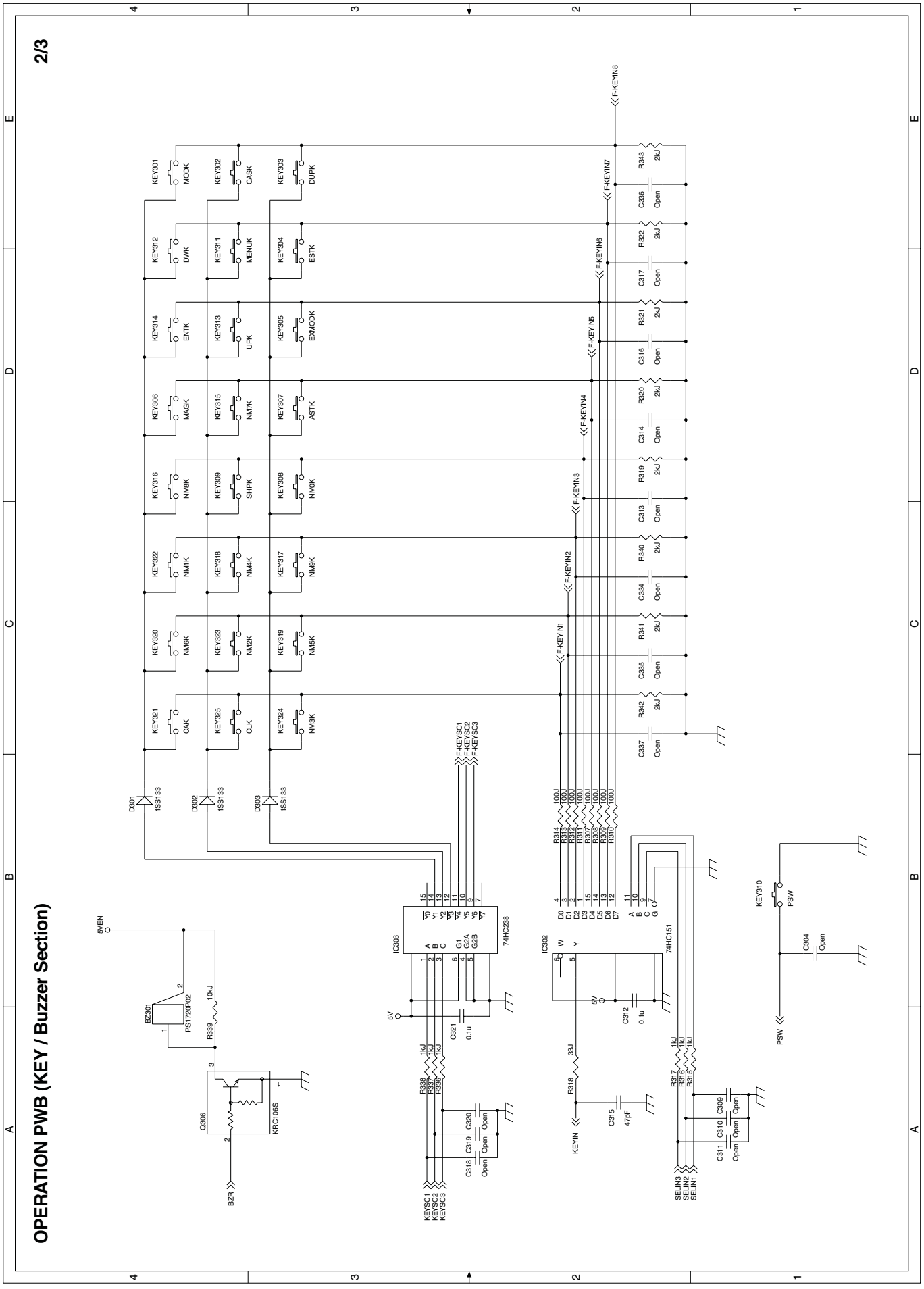


To Scanner unit



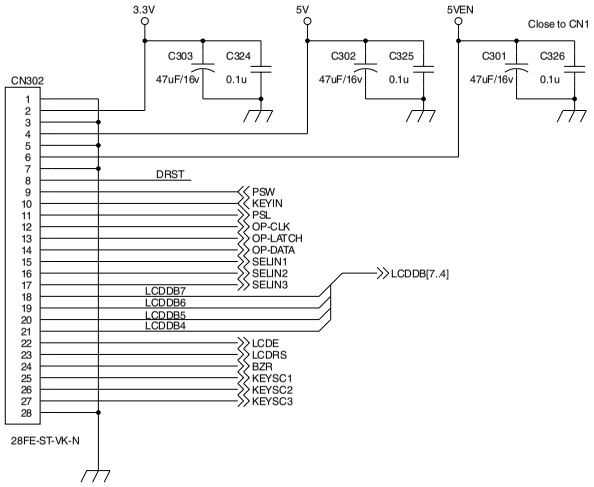
2. OPERATION PWB



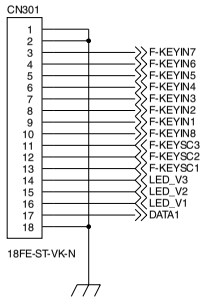

OPERATION PWB (KEY / Buzzer Section)
2/3
KEY301 MODK
KEY302 CASK
KEY303 DUPK
KEY304 ESTK
KEY305 EXMODK
KEY306 MAGK
KEY307 ASTK
KEY308 NM0K
KEY309 SHPK
KEY310 PSW
KEY311 MENUK
KEY312 DWK
KEY313 UPK
KEY314 ENTK
KEY315 NM7K
KEY316 NM8K
KEY317 NM9K
KEY318 NM4K
KEY319 NM5K
KEY320 NM6K
KEY321 CAK
KEY322 NM1K
KEY323 NM2K
KEY324 NM3K
KEY325 CLK
D301 1SS133
D302 1SS133
D303 1SS133
F-KEYIN1
F-KEYIN2
F-KEYIN3
F-KEYIN4
F-KEYIN5
F-KEYIN6
F-KEYIN7
F-KEYIN8
F-KEYSC1
F-KEYSC2
F-KEYSC3
R314 100J
R313 100J
R312 100J
R311 100J
R307 100J
R308 100J
R309 100J
R310 100J
R342 2kJ
R341 2kJ
R340 2kJ
R319 2kJ
R320 2kJ
R321 2kJ
R322 2kJ
R343 2kJ
C337 Open
C335 Open
C334 Open
C313 Open
C314 Open
C316 Open
C317 Open
C336 Open
5VEN
BZ301 PS1720P02
R339 10kJ
Q306 KRC106S
BZR
IC303 74HC238
R338 1kJ
R337 1kJ
R336 1kJ
C321 0.1u
C320 Open
C319 Open
C318 Open
KEYSC1
KEYSC2
KEYSC3
IC302 74HC151
R318 33J
C315 47pF
C312 0.1u
KEYIN
R317 1kJ
R316 1kJ
R315 1kJ
C311 Open
C310 Open
C309 Open
SELIN3
SELIN2
SELIN1
C304 Open
PSW
5V

OPERATION PWB (Connector Section)

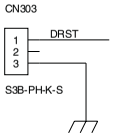
To MCU PWB



To FAX Key PWB

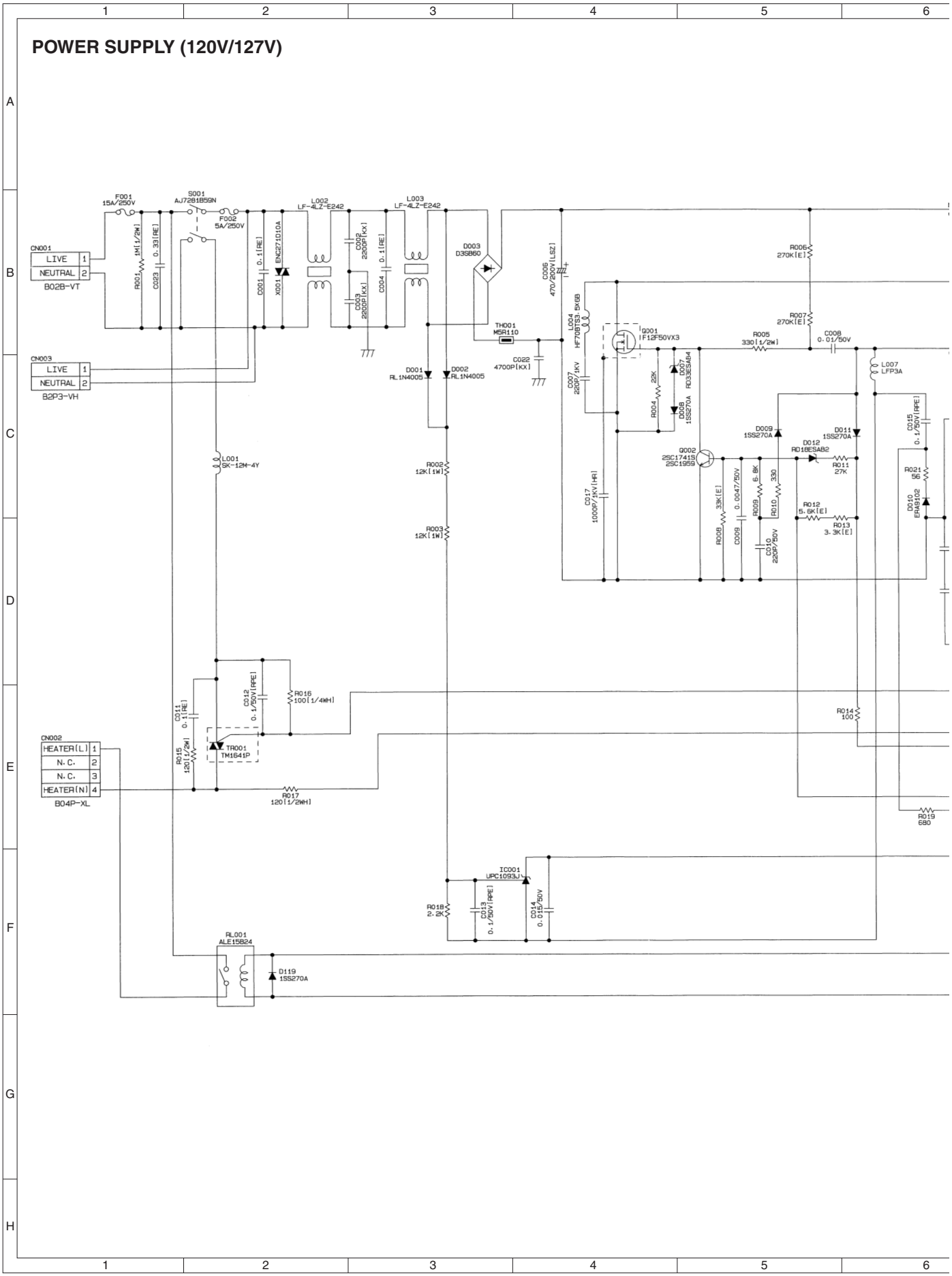


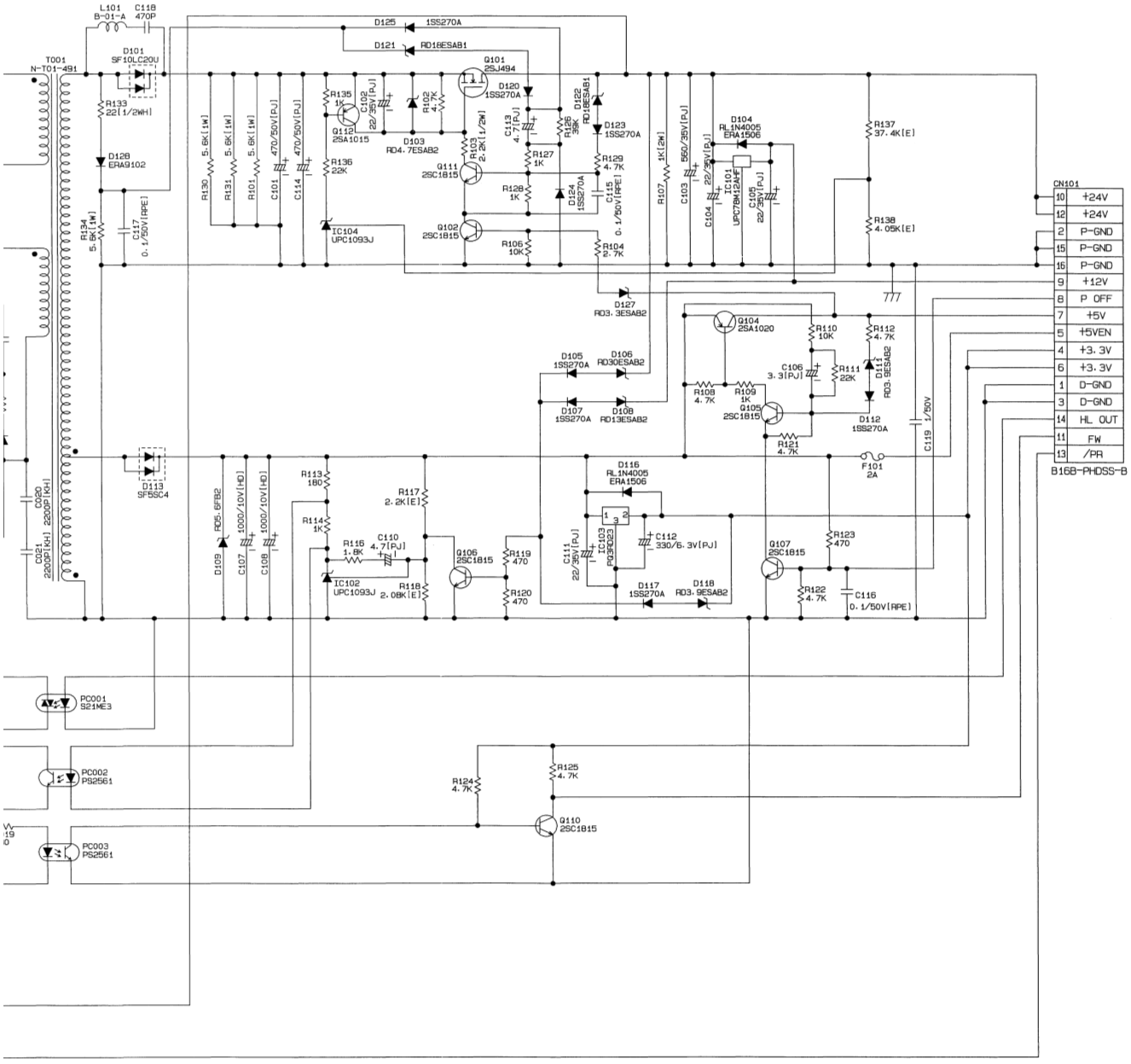
To Drum Initial Detector



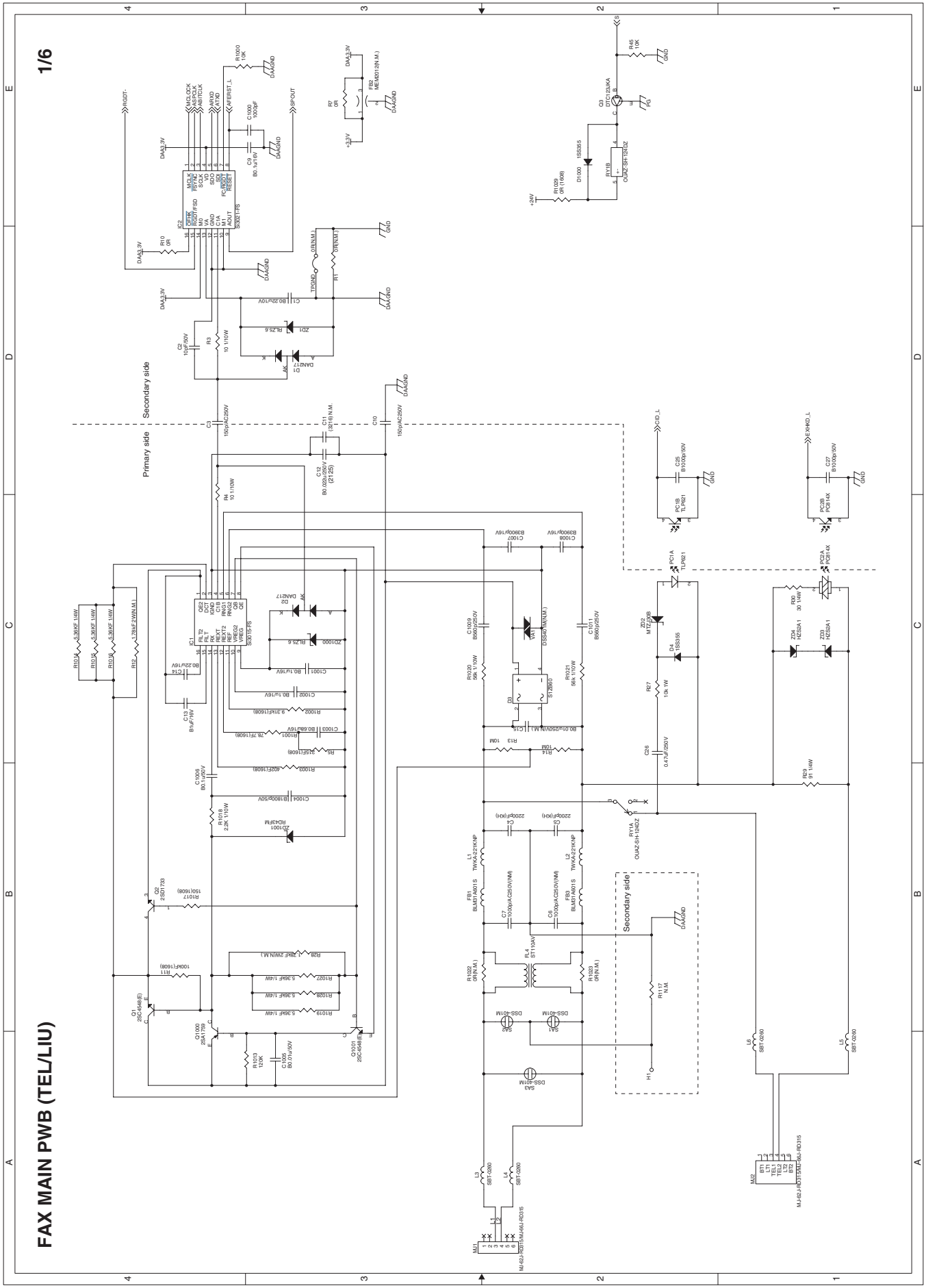
3. POWER SUPPLY

POWER SUPPLY (120V/127V)




L101 B-01-A
C118 470P
T001 N-T01-491
D101 SF10LC20U
D125 1SS270A
D121 RD16ESAB1
Q101 2SJ494
D120 1SS270A
D122 RD16ESB1
D123 1SS270A
D104 RLN4005 ERA1506
R137 37.4K[E]
R138 4.05K[E]
IC101 UPC78M12AHF
C105 22/35V[PJ]
C104 22/35V[PJ]
C103 560/25V[PJ]
R107 1K[2W]
D128 ERA9102
R133 22[1/2WH]
R134 5.6K[1W]
C117 0.1/50V[RPE]
R130 5.6K[1W]
R131 5.6K[1W]
R101 5.6K[1W]
C101 470/50V[PJ]
C114 470/50V[PJ]
R135 1K
Q112 2SA1015
C102 22/35V[PJ]
R102 4.7K
D103 RD4.7ESAB2
C113 4.7[PJ]
R126 39K
R103 2.2K[1/2W]
Q111 2SC1815
R127 1K
R136 22K
IC104 UPC1093J
R128 1K
D124 1SS270A
C115 0.1/50V[RPE]
R129 4.7K
Q102 2SC1815
R106 10K
R104 2.7K
D127 RD3.3ESAB2
Q104 2SA1020
R110 10K
R112 4.7K
D105 1SS270A
D106 RD30ESAB2
C106 3.3[PJ]
R111 22K
D111 RD3.9ESAB2
R108 4.7K
R109 1K
Q105 2SC1815
D107 1SS270A
D108 RD13ESAB2
D112 1SS270A
C119 1/50V
R121 4.7K
F101 2A
D113 SF5SC4
C120 2200P[KH]
C121 2200P[KH]
D109 RD5.6FB2
C107 1000/10V[HD]
C108 1000/10V[HD]
R113 180
R114 1K
R116 1.8K
C110 4.7[PJ]
IC102 UPC1093J
R118 2.08K[E]
R117 2.2K[E]
Q106 2SC1815
R119 470
R120 470
D116 RLN4005 ERA1506
C111 22/35V[PJ]
IC103 PQ3RD23
C112 330/6.3V[PJ]
D117 1SS270A
D118 RD3.9ESAB2
Q107 2SC1815
R123 470
R122 4.7K
C116 0.1/50V[RPE]
PC001 S21ME3
PC002 PS2561
PC003 PS2561
R124 4.7K
R125 4.7K
Q110 2SC1815
CN101
10 +24V
12 +24V
2 P-GND
15 P-GND
16 P-GND
9 +12V
8 P OFF
7 +5V
5 +5VEN
4 +3.3V
6 +3.3V
1 D-GND
3 D-GND
14 HL OUT
11 FW
13 /PR
B16B-PHDSS-B

4. FAX MAIN PWB


1/6
FAX MAIN PWB (TEL/LIU)
Secondary side
Primary side
Secondary side
DAA3.3V
DAAGND
GND
+24V
+3.3V
RIGOT-
SP-OUT
MCLOCK
ASPCLK
ARYD
ATXD
AFERST_L
IC2
S3203-11FS
IC1
S3031F-FS
D1
DAN217
ZD1
RL2Z5.6
ZD1000
RL2Z5.6
ZD1001
RD43FM
D2
DAN217
Q1
2SC4648(E)
Q1000
2SA1759
Q1001
2SC4648(E)
Q2
2SD1733
D1000
1SS355
RY1B
OJAZ-SH-124DZ
RY1A
OJAZ-SH-124DZ
Q3
DTC123JKA
PC1A
TLP621
PC1B
TLP621
PC2A
PC814X
PC2B
PC814X
ZD2
MTZJ5.6B
D4
1SS355
ZD4
HZ33A1
ZD3
HZ33A1
D3
S1ZB60
VA1
DSS04(M.N.M.)
FB1
BLM31A601S
FB2
BLM31A601S
FB3
BLM31A601S
FL4
ST1104V
L1
TWKA-221KNP
L2
TWKA-221KNP
L3
SBT-0260
L4
SBT-0260
L5
SBT-0260
L6
SBT-0260
SA1
DSS-401M
SA2
DSS-401M
SA3
DSS-401M
M11
MJ-60J-RD315/MJ-66J-RD315
M12
MJ-66J-RD315/MJ-66J-RD315
R1000 10K
R1001 10K
R1002 10K
R1003 10K
R1004 10K
R1005 10K
R1006 10K
R1007 150(1608)
R1008 100R(1608)
R1009 0R (1608)
R1010 10K
R1011 10K
R1012 10K
R1013 120K
R1014 5.36KF 1/4W
R1015 5.36KF 1/4W
R1016 5.36KF 1/4W
R1017 1.78KF 2W(N.M.)
R1018 2.2K 1/10W
R1019 5.36kF 1/4W
R1020 56k 1/10W
R1021 56k 1/10W
R1022 0R(N.M.)
R1023 0R(N.M.)
R1024 5.36kF 1/4W
R1025 5.36kF 1/4W
R1026 5.36kF 1/4W
R1027 5.36kF 1/4W
R1028 5.36kF 1/4W
R1029 0R (1608)
R1030 0R(N.M.)
R1031 0R(N.M.)
R1032 0R(N.M.)
R1033 0R(N.M.)
R1034 0R(N.M.)
R1035 0R(N.M.)
R1036 0R(N.M.)
R1037 0R(N.M.)
R1038 0R(N.M.)
R1039 0R(N.M.)
R1040 0R(N.M.)
R1041 0R(N.M.)
R1042 0R(N.M.)
R1043 0R(N.M.)
R1044 0R(N.M.)
R1045 0R(N.M.)
R1046 0R(N.M.)
R1047 0R(N.M.)
R1048 0R(N.M.)
R1049 0R(N.M.)
R1050 0R(N.M.)
R1051 0R(N.M.)
R1052 0R(N.M.)
R1053 0R(N.M.)
R1054 0R(N.M.)
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R1056 0R(N.M.)
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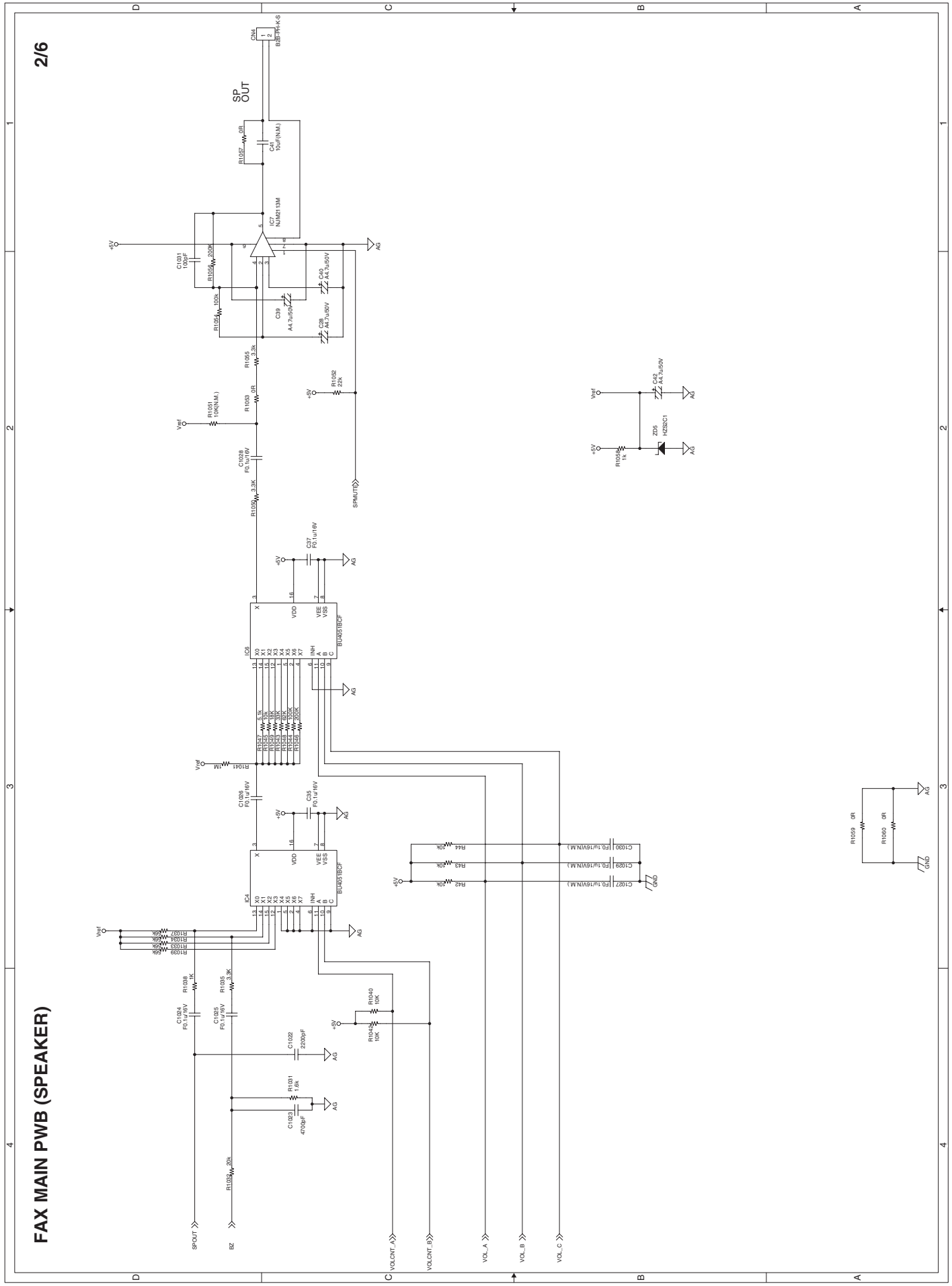
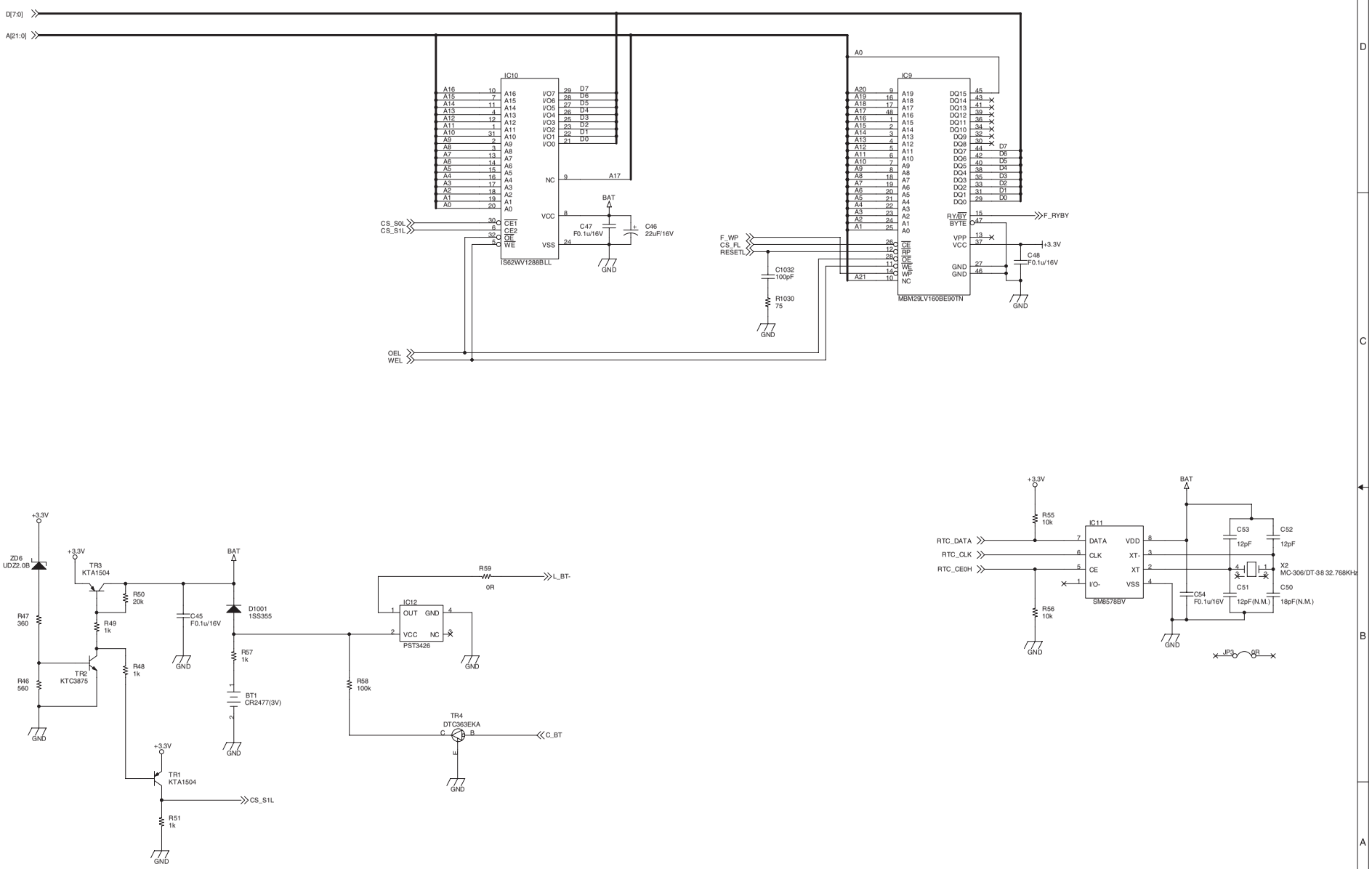
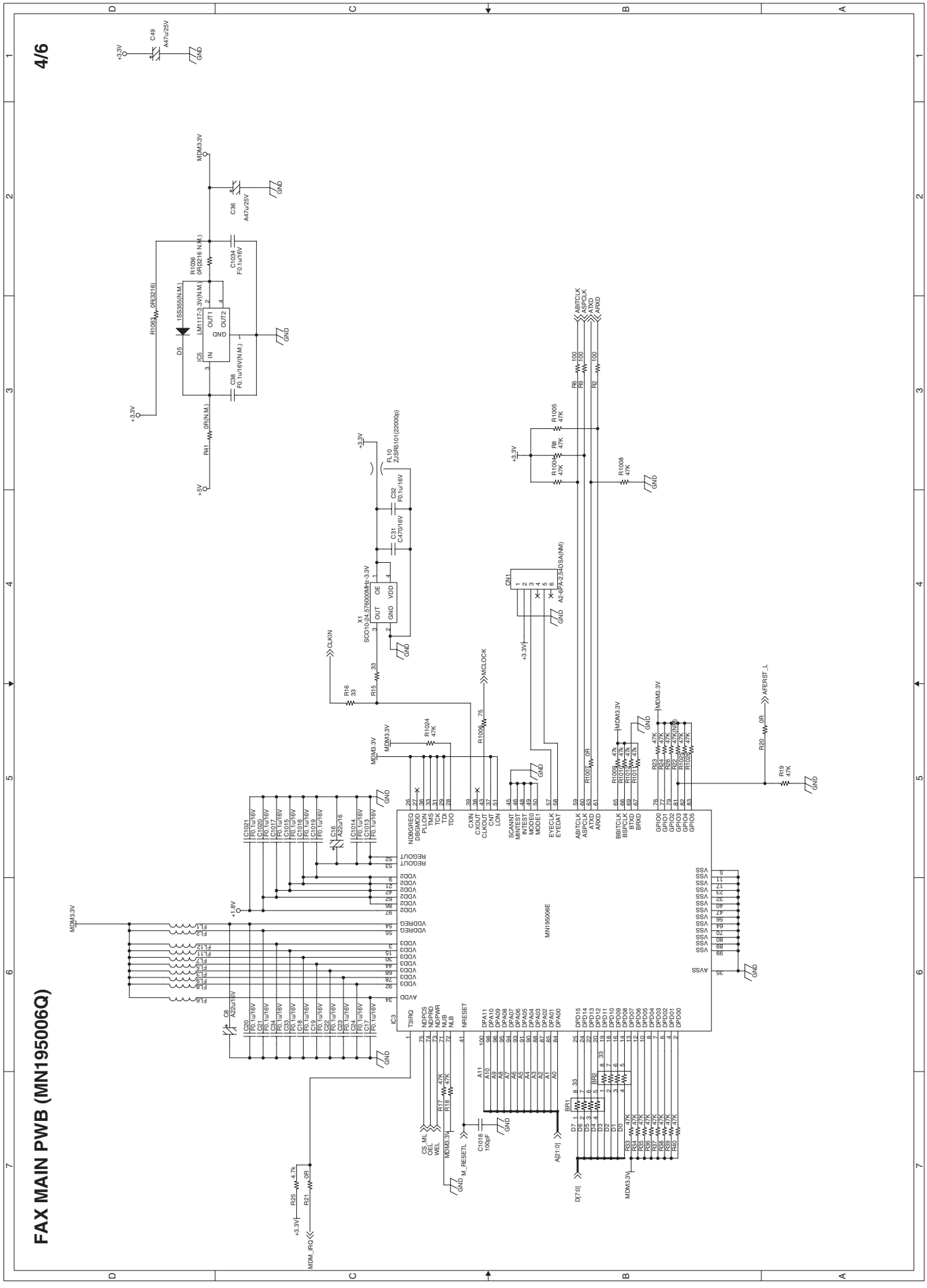
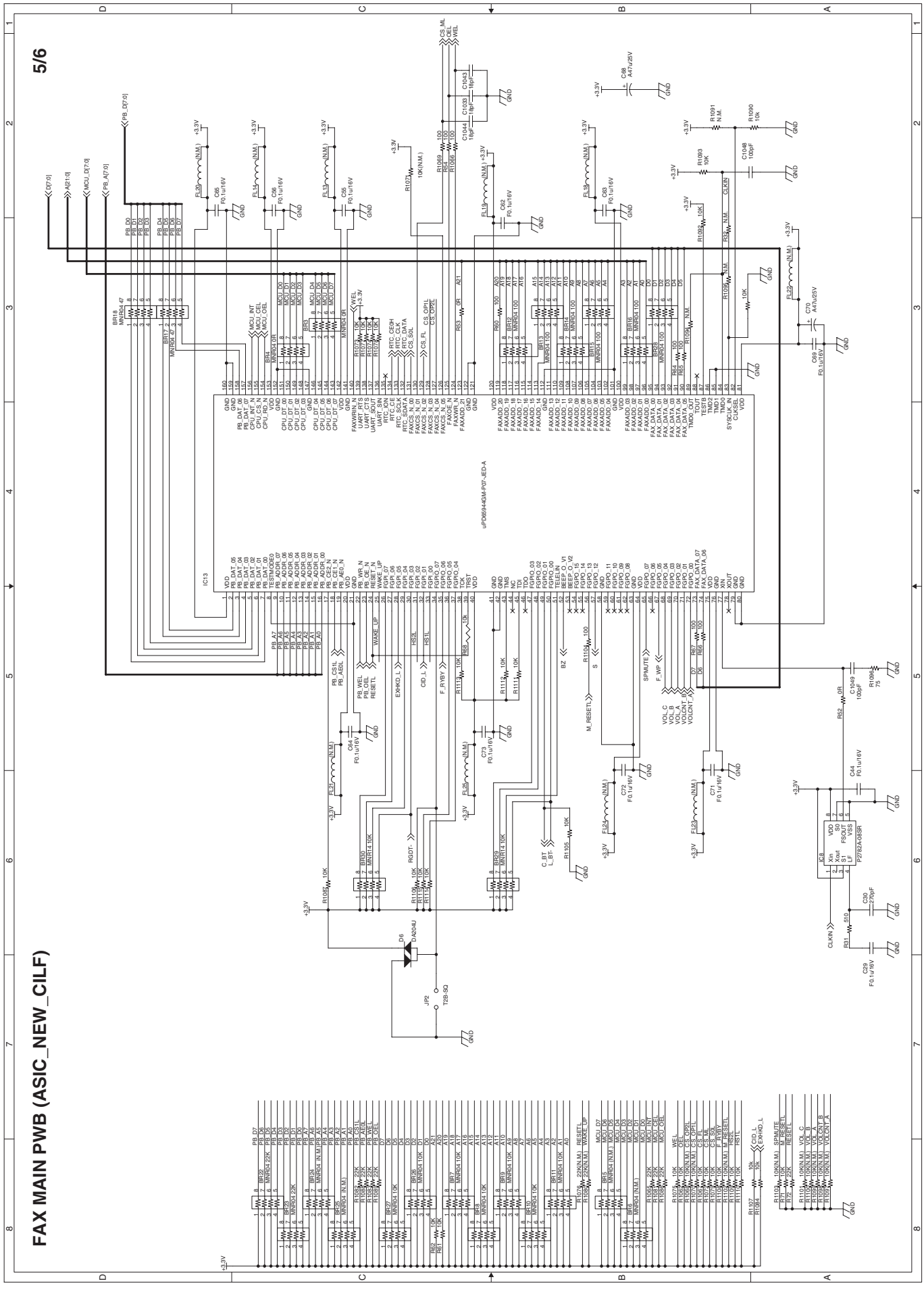
R1060 0R(N.M.)
R1061 0R(N.M.)
R1062 0R(N.M.)
R1063 0R(N.M.)
R1064 0R(N.M.)
R1065 0R(N.M.)
R1066 0R(N.M.)
R1067 0R(N.M.)
R1068 0R(N.M.)
R1069 0R(N.M.)
R1070 0R(N.M.)
R1071 0R(N.M.)
R1072 0R(N.M.)
R1073 0R(N.M.)
R1074 0R(N.M.)
R1075 0R(N.M.)
R1076 0R(N.M.)
R1077 0R(N.M.)
R1078 0R(N.M.)
R1079 0R(N.M.)
R1080 0R(N.M.)
R1081 0R(N.M.)
R1082 0R(N.M.)
R1083 0R(N.M.)
R1084 0R(N.M.)
R1085 0R(N.M.)
R1086 0R(N.M.)
R1087 0R(N.M.)
R1088 0R(N.M.)
R1089 0R(N.M.)
R1090 0R(N.M.)
R1091 0R(N.M.)
R1092 0R(N.M.)
R1093 0R(N.M.)
R1094 0R(N.M.)
R1095 0R(N.M.)
R1096 0R(N.M.)
R1097 0R(N.M.)
R1098 0R(N.M.)
R1099 0R(N.M.)
R1100 0R(N.M.)
R1101 0R(N.M.)
R1102 0R(N.M.)
R1103 0R(N.M.)
R1104 0R(N.M.)
R1105 0R(N.M.)
R1106 0R(N.M.)
R1107 0R(N.M.)
R1108 0R(N.M.)
R1109 0R(N.M.)
R1110 0R(N.M.)
R1111 0R(N.M.)
R1112 0R(N.M.)
R1113 0R(N.M.)
R1114 0R(N.M.)
R1115 0R(N.M.)
R1116 0R(N.M.)
R1117 N.M.
R1118 0R(N.M.)
R1119 0R(N.M.)
R1120 0R(N.M.)
R1121 0R(N.M.)
R1122 0R(N.M.)
R1123 0R(N.M.)
R1124 0R(N.M.)
R1125 0R(N.M.)
R1126 0R(N.M.)
R1127 0R(N.M.)
R1128 0R(N.M.)
R1129 0R(N.M.)
R1130 0R(N.M.)
R1131 0R(N.M.)
R1132 0R(N.M.)
R1133 0R(N.M.)
R1134 0R(N.M.)
R1135 0R(N.M.)
R1136 0R(N.M.)
R1137 0R(N.M.)

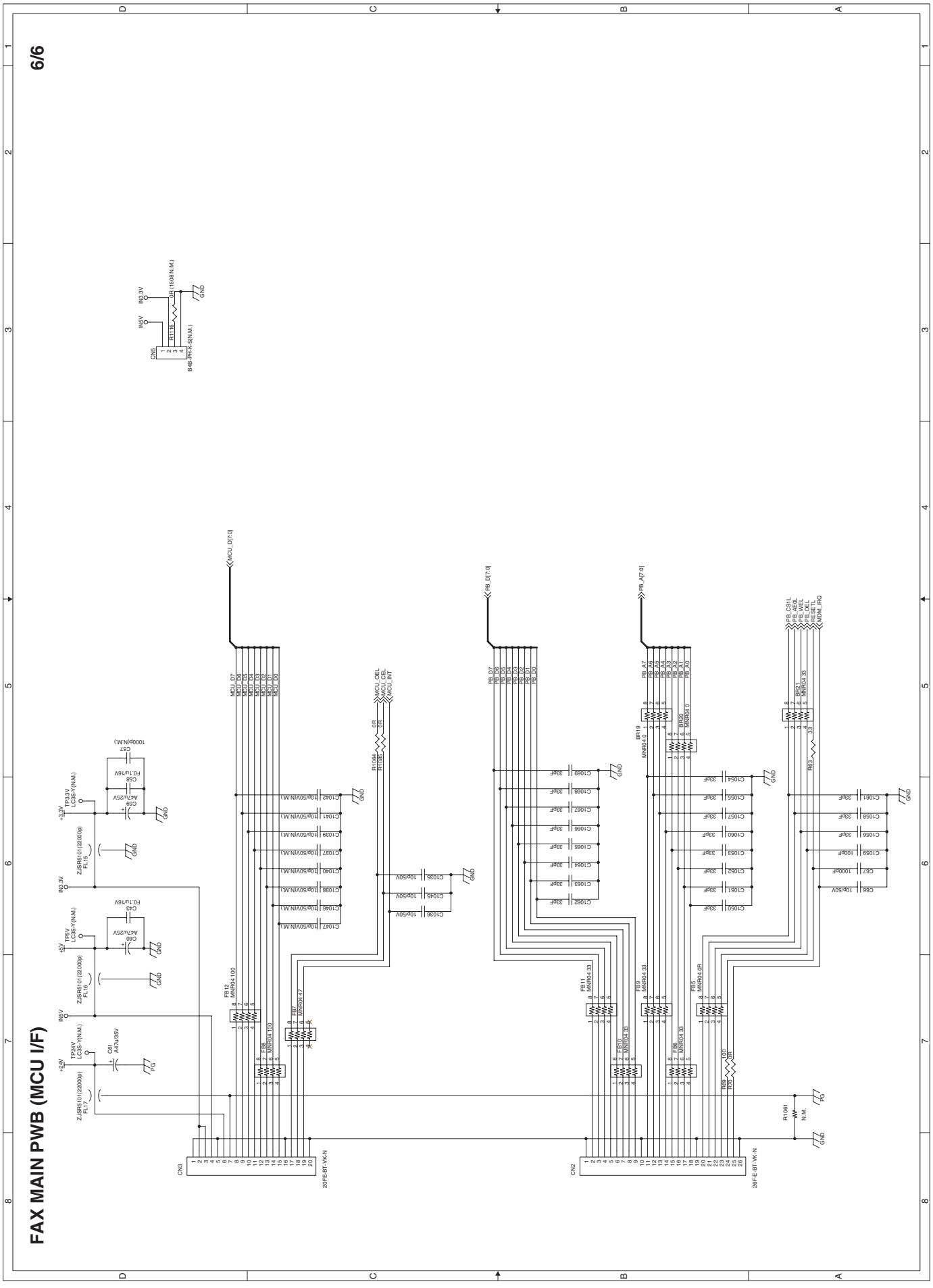

FAX MAIN PWB (SPEAKER)
2/6
SP OUT
CN4
B2B-PH-K-S
IC7
NJM2113M
IC6
IC4
BU4051BCF
SPOUT
BZ
SPMUTE
VOLCNT_A
VOLCNT_B
VOL_A
VOL_B
VOL_C
+5V
AG
Vref
GND

FAX MAIN PWB (SRAM & FLASHROM(16M))

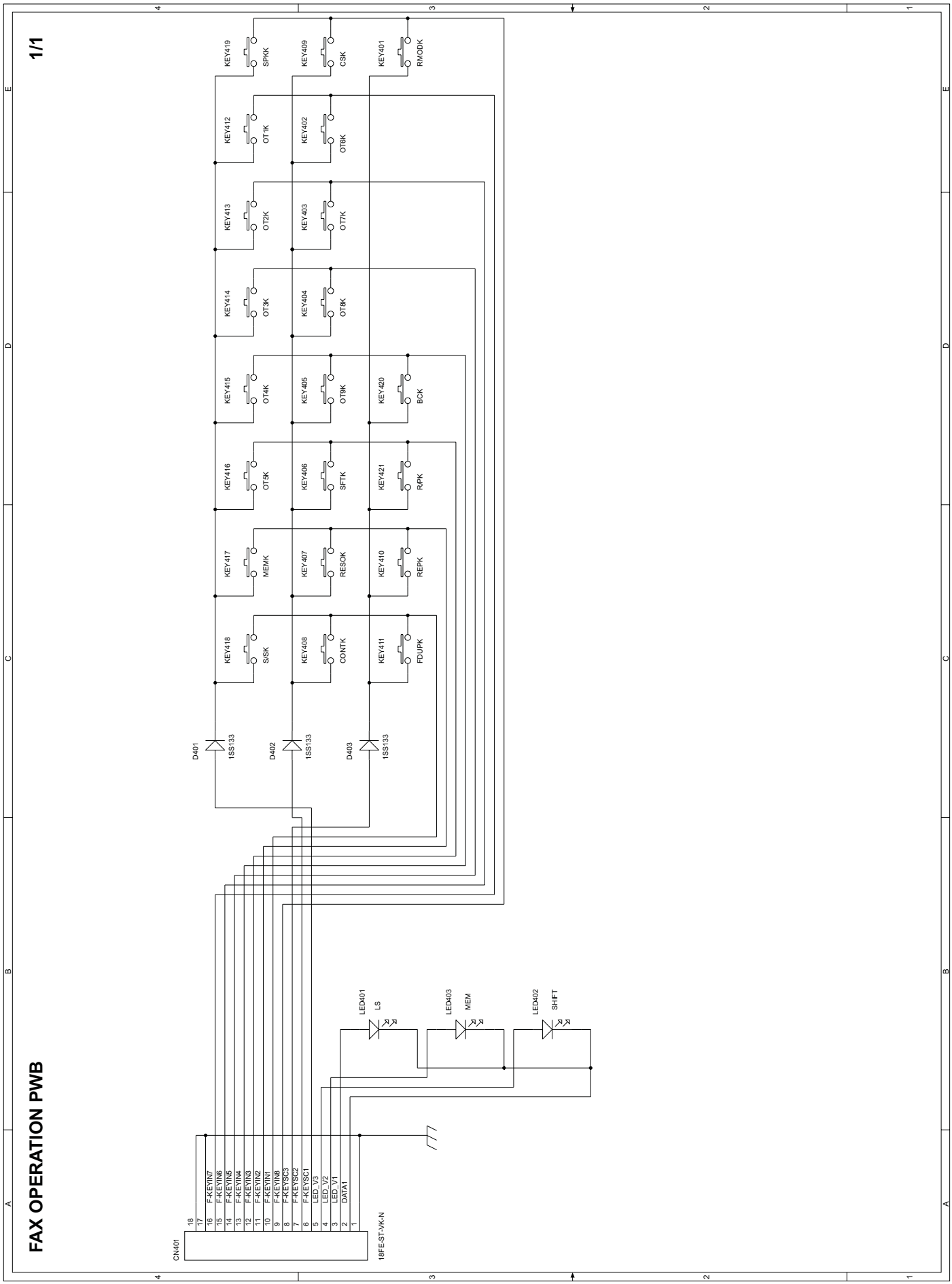



4/6
FAX MAIN PWB (MN195006Q)
MN195006E
LM1117-3.3V(N.M.)
1SS355(N.M.)
SCO1634-576000MHz
ZJSPR101(220000p)
A2-6PX-2.54DSA(N/M)
MDM_IRQ
M_RESETL
CLKIN
MCLOCK
AFERST_L
CS_ML
OEL
WEL
D[7:0]
A[21:0]


FAX MAIN PWB (ASIC_NEW_CILF)
5/6

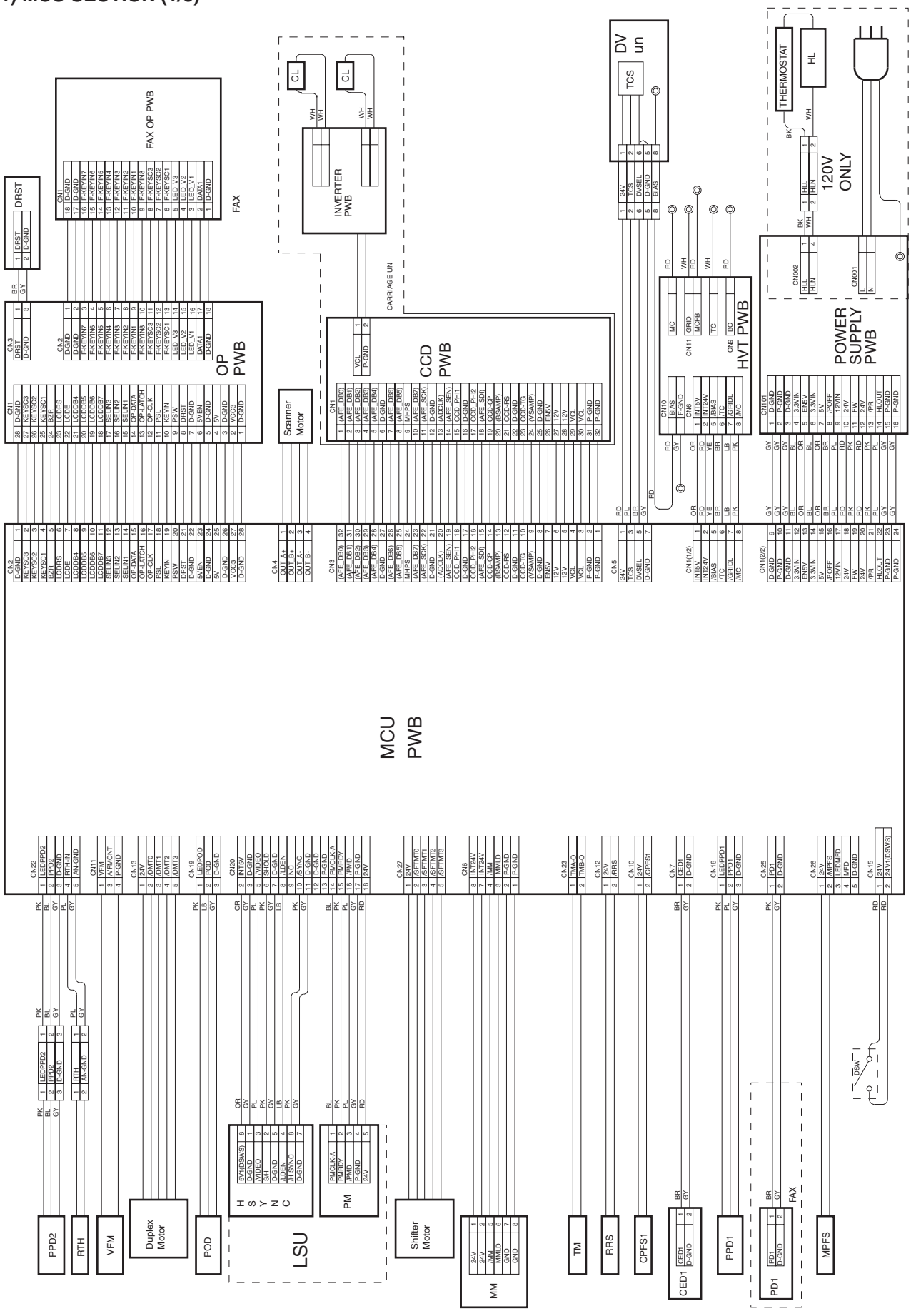

FAX MAIN PWB (MCU I/F)
6/6
MCU_D[7:0]
PB_D[7:0]
PB_A[7:0]
MCU_OEL
MCU_CEL
MCU_INT
PB_CS1L
PB_AS
PB_WEL
PB_OEL
RESETL
MDM_IRQ
+24V
+5V
+3.3V
IN24V
IN5V
IN3.3V
TP24V
TP5V
TP3.3V
LCSS-Y(N.M.)
Z-SR510(22000p)
FL16
FL17
C61 A47u/35V
C60 A47u/25V
C59 A47u/25V
C58 F0.1u/16V
C43 F0.1u/16V
C57 1000P(N.M.)
FB12 MNR04 100
FB8 MNR04 100
FB7 MNR04 47
FB11 MNR04 33
FB10 MNR04 33
FB9 MNR04 33
FB6 MNR04 0R
FB5 MNR04 0R
R106E 0R
R106F 0R
R69 100
R70 0R
R106I N.M.
BR19 MNR04 0
BR20 MNR04 0
BR21 MNR04 33
R63 33
C1042 C1041 C1039 C1037 C1040 C1038 C1046 C1047 10p/50V(N.M.)
C1035 C1045 C1036 10p/50V
C1062 C1063 C1064 C1065 C1066 C1067 C1068 C1069 33pF
C1050 C1051 C1053 C1052 C1060 C1057 C1055 C1054 33pF
C1061 C1058 C1056 C1059 33pF
C66 10p/50V
C67 1000P
C1059 100pF
CN3 20FE-BT-VK-N
CN2 26FE-BT-VK-N
CN5 B4B-PHVK-S(N.M.)
BR1(1608:N.M.)
R111B
GND
PG

5. FAX OPERATION

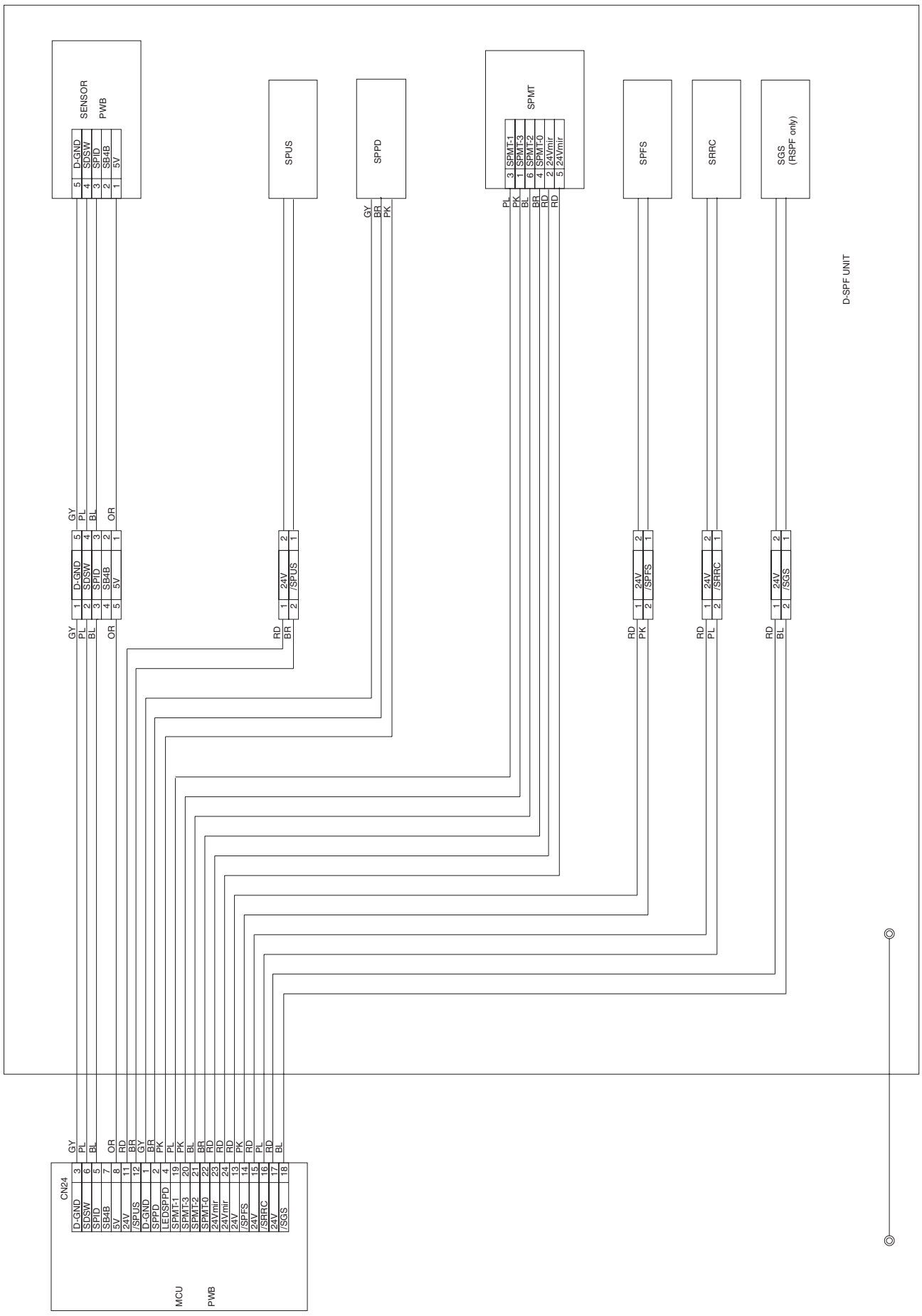


6. ACTUAL WIRING DIAGRAM

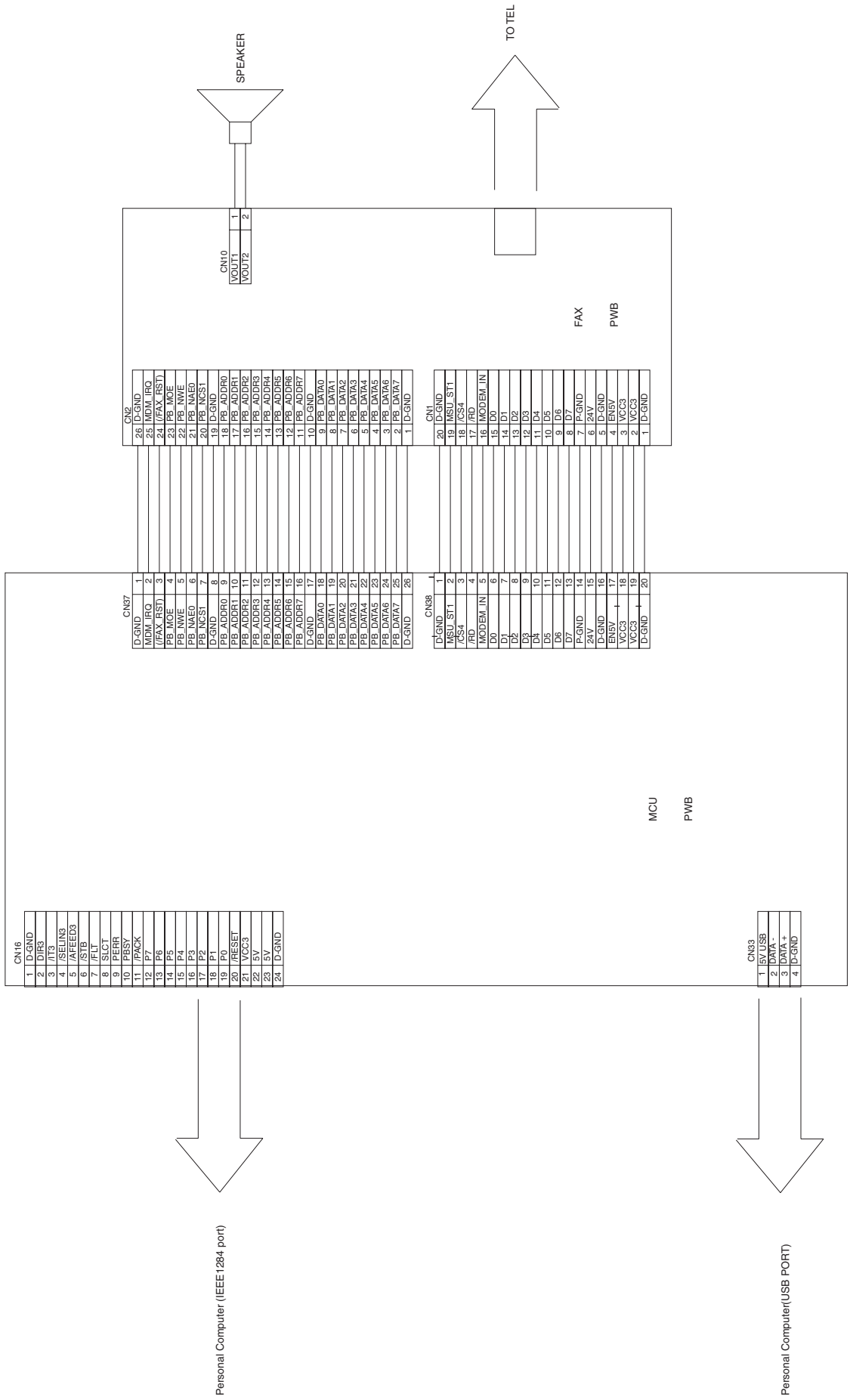
(1) MCU SECTION (1/3)



(2) RSPF/SPF SECTION (2/3)



(3) I/F & FAX SECTION (3/3)



[15] FIRMWARE DOWNLOAD PROCEDURES

[Preparation]

Write the download data (extension .dwl) into the main unit.

A USB port is required for the PC.

Create "MaintenanceTool " flooder in the PC, and copy the following files to the folder.

Necessary for program download

- Maintenance.exe (← Tool program)
- ProcModelB.mdl
- ProcModelC.mdl
- ProcModelE.fmt
- ProcModelE.ini
- ProcModelE.mdl

Driver

- Drivers/2kXP/Mainte.inf (For Windows XP/2000)
- Drivers/Win9xME/Mainte.inf (For Windows Me/98SE)
- Drivers/Win9xME/UsbScan.sys (For Windows Me/98SE)

Download file

- Download file (extension .dwl)

Note: Copy the download data file (extension .dwl) to the folder in which the maintenance program is included.

When making a folder for the maintenance tool in the PC, do not put a long folder name in the absolute path.

[Example]

Erroneous case: c:\Mainte nance Tool Download

Proper case: c:\MaintenanceTool

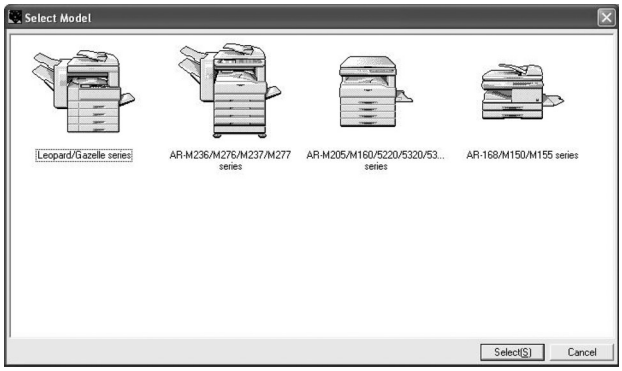
1. Initial setting (Serial number setting procedures)

The serial number is set to the PC which is used for downloading. Setting is required once only, and there is no need to set again when rebooting the program.

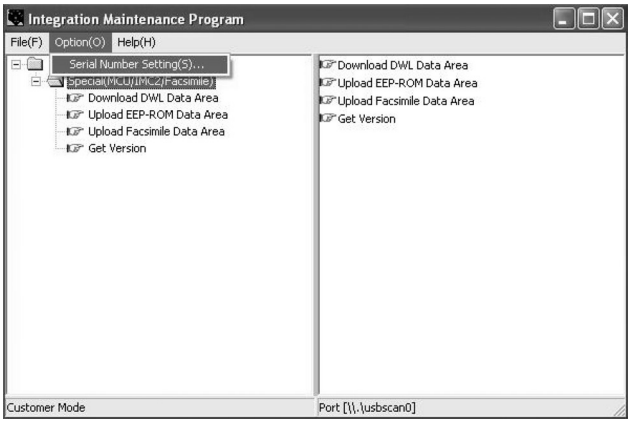
Note: This setting is required only when downloading the default data of E2PROM, and is not required when downloading firmware only.

1) PC side: Boot "Maintenance.exe" and select "AR-168/M150/M155 series" in the "Select Model" menu.

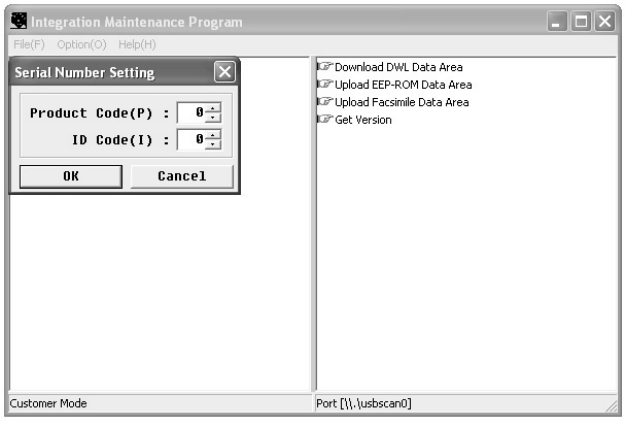
(Only to set the serial number, the PC should not be connected to the machine.)



2) Select "Option" → "Serial Number Setting" on the menu bar.



3) Set the serial number according to the following.



Product Code (P): Enter number (0 – 99)
Enter the product code of “3.”

ID Code(I): Enter number (0 – 99)
Assign an individual code to each PC uses “Maintenance.exe.”

After completion setting, press [OK] key.

4) The serial number has been assigned.

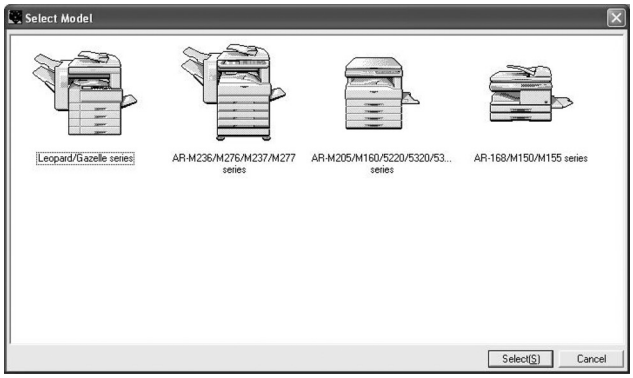
2. Download procedures

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

Check that "DOWNLOAD MODE" is displayed on the LCD of the operation panel. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)

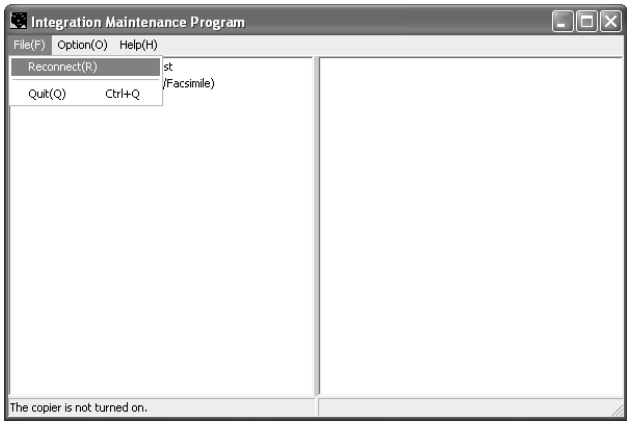
2) Connect machine and the PC with a USB cable. (Connect it to the USB port on the main unit without fail.

3) PC side: Boost "Maintenance.exe" and select "AR-168/M150/M155 series" in the Select Model menu.

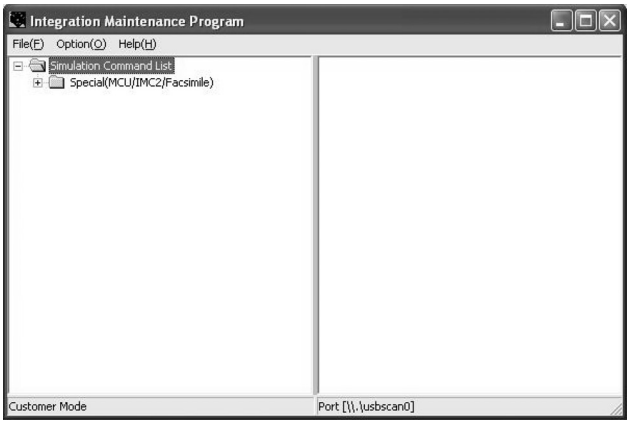


4) PC side: Check that the "Simulation Command List" tree is displayed on the integration maintenance program.

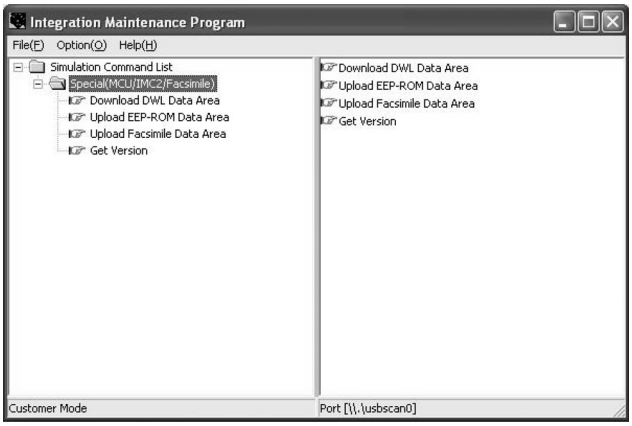
5) PC side: When the integration maintenance program is boosted and "The copier is not turned on." is displayed at the bottom of display, select "File" → "Reconnect" on the menu bar.



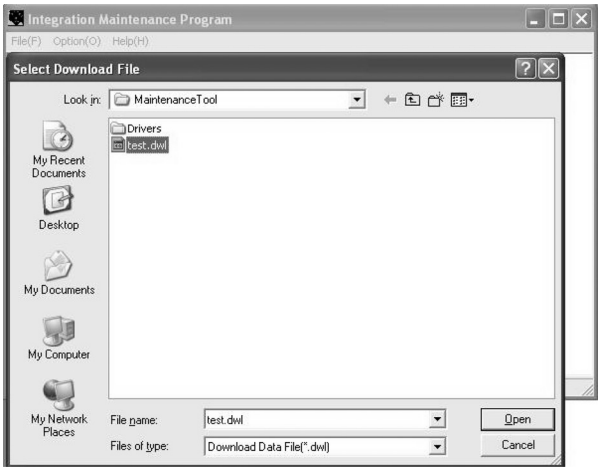
6) PC side: Check that trees are displayed in the "Special (MCU/IMC2/Facsimile)" folder in the integration maintenance program. (If trees are not displayed, check that the USB connector is connected, and select "Reconnect" in procedure 5) again.)



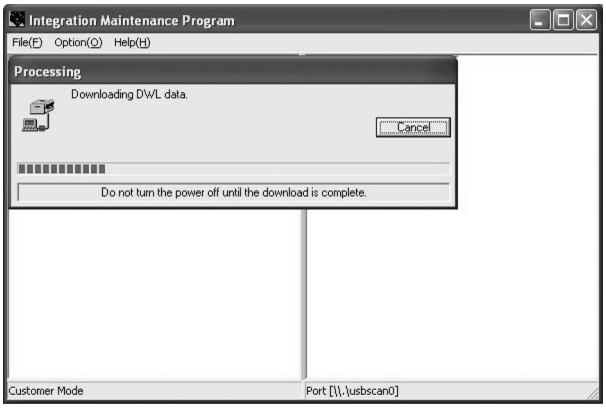
7) PC side: Double-click "Special (MCU/IMC2/Facsimile)" in the main tree to develop its sub trees, and double-click "Download DWL Data Area" in the sub trees.



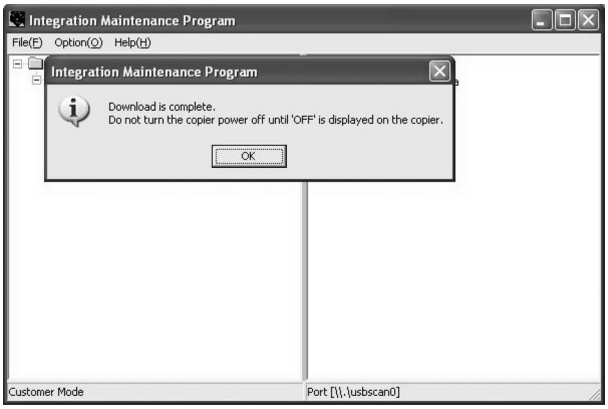
8) PC side: Specify the download file (*****.dwl) to be used.



9) PC side: When a download file is specified, downloading is performed automatically.



10) PC side: When download is completed, the following message is displayed.



Note: Since, however, the machine enters the download data write state, do not turn OFF the power of the machine at this moment.

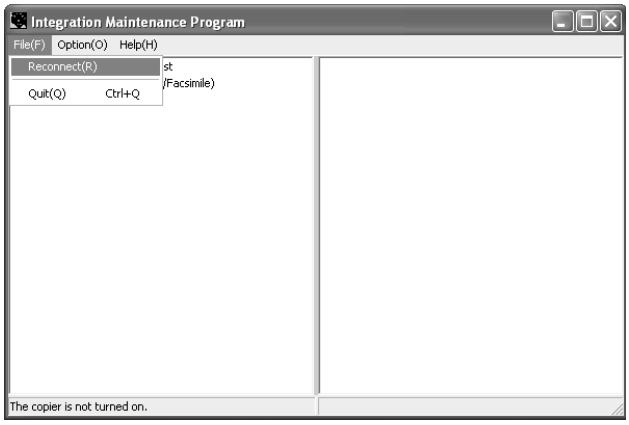
11) Main unit side: Wait until "DOWNLOAD COMPLETE!" is displayed on the LCD of the operation panel. When "DOWNLOAD COMPLETE!" is displayed, download is completed.

Turn OFF the power of the machine, and disconnect the USB cable.

12) Terminate the integration maintenance program, and turn ON the machine again.

Download is completed with the above procedures.

Note: When another machine is connected, connect the USB cable again and select "File" → "Reconnect" on the menu bar of the integration maintenance program. Repeat the above procedures from 5).



∗ Inhibition during download (Important)

If download is failed, the next download may not be executed. Use great care not to execute the following items during download.

- Never turn off the machine.
- Never disconnect the download cable (USB cable).

*** If the above inhibition item occurs during downloading, turn OFF/ON the power.**

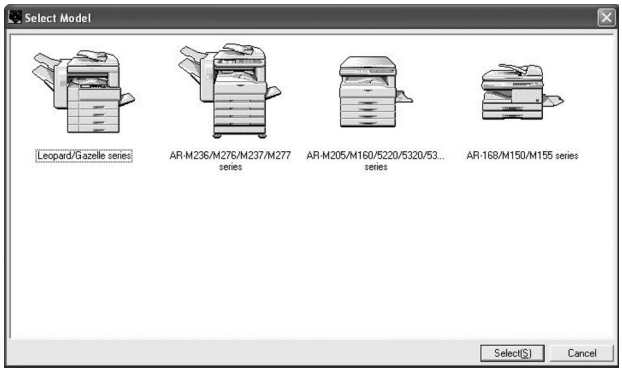
1) When "DOWNLOAD MODE" is displayed on the operation panel, execute the download procedure again.
2) If "DOWNLOAD MODE" is not displayed on the operation panel, turn OFF the power and press and hold [CA] key and [DOWN] key (left key) and turn ON the power. Check that "DOWNLOAD MODE" is displayed on the operation panel, and execute the download procedure again.

   If "DOWNLOAD MODE" is not still displayed, replace the MCU with a new one.

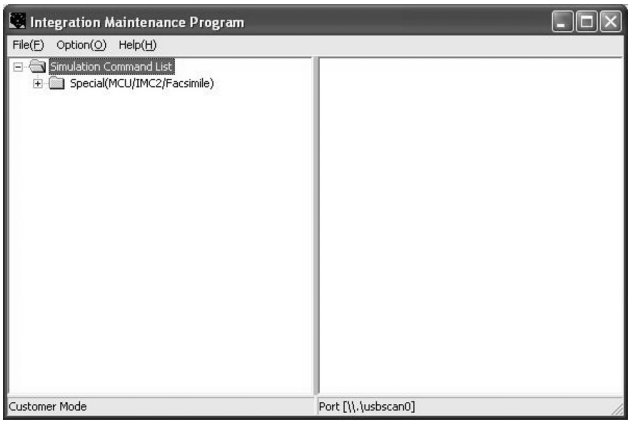
3. Version acquisition procedures

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

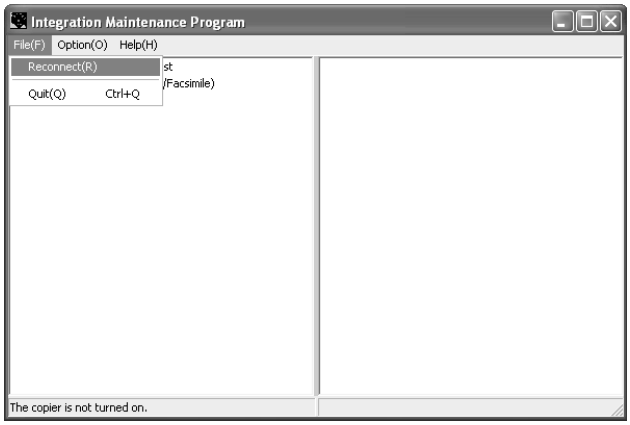
   Check that "DOWNLOAD MODE" is displayed on the operation panel of the main unit. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)
2) Connect the machine and the PC with a USB cable.
3) PC side: Boost "Maintenance.exe" and select "AR-168/M150/M155 series" in the "Select Model" menu.



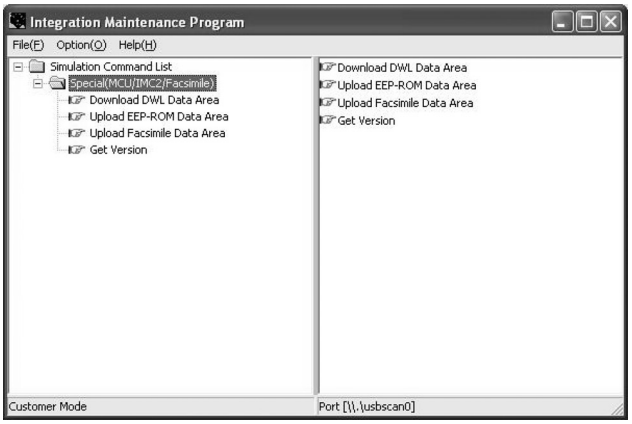
4) PC side: Check that the "Simulation Command List" tree on the integration maintenance program.



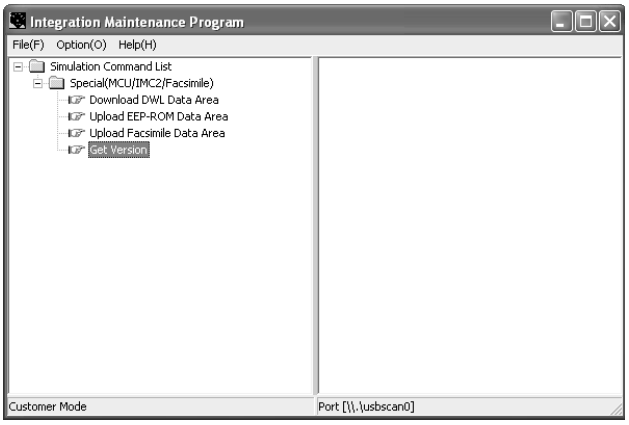
5) PC side: Boot the integration maintenance program. If "The copier is not turned on." is displayed, select "File" → "Reconnect" on the menu bar.



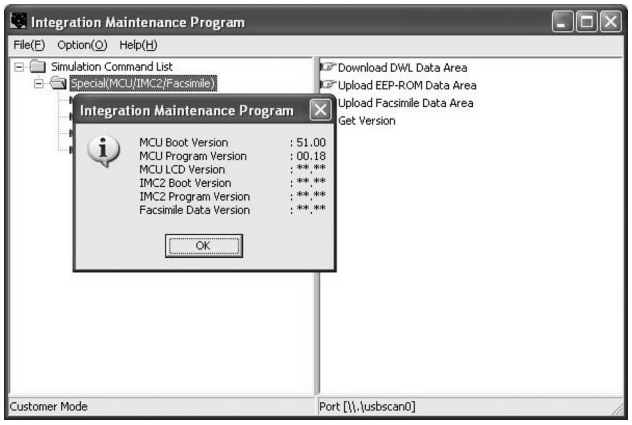
6) PC side: Check that trees are displayed on "Special (MCU/IMC2/ Facsimile" in the integration maintenance program. (If trees are not displayed, check that the USB cable is connected and select "Reconnect" again in procedure 5).



7) PC side: Double-click "Special (MCU/IMC2/Facsimile)" in the main tree items to develop its sub trees. Select "Get Version" in the sub trees.



8) Check that the following display is shown.



With the above procedures, version acquisition is completed.

- The display of "**.**" means its version is not downloaded. The downloaded versions are displayed in a version number as shown in “MCU Boot Version” and “MCU program Version”.

4. EEPROM data acquisition procedure

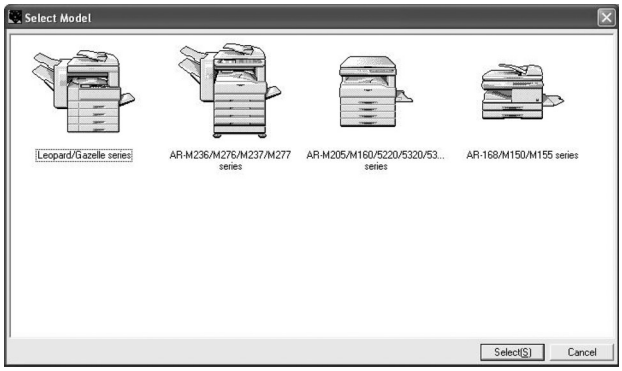
EEPROM data is acquired to the PC. Use this procedure as data maintenance of EEPROM.

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

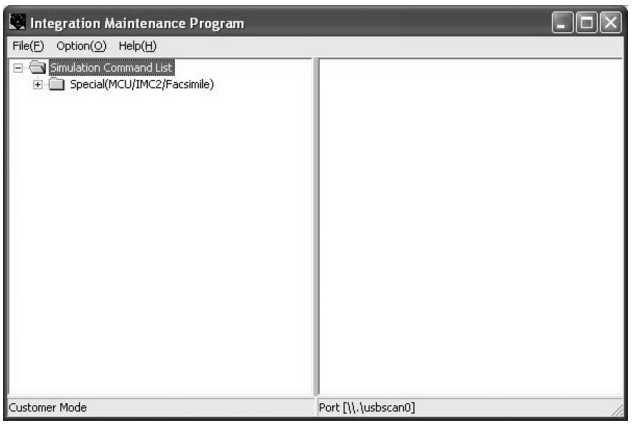
   Check that "DOWNLOAD MODE" is displayed on the operation panel of the main unit. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)

2) Connect the machine and the PC with a USB cable.

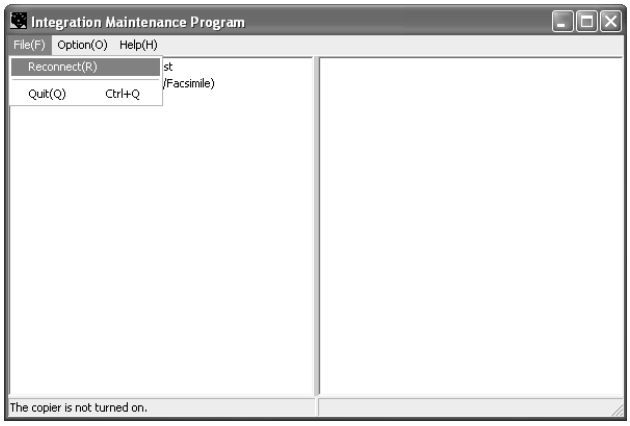
3) PC side: Boot "Maintenance.exe" and select "AR-168/M150/M155 series" in the "Select Model" menu.



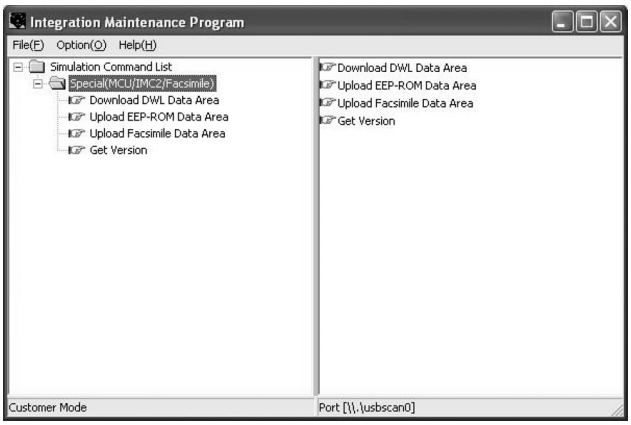
4) PC side: Check that "Simulation Command List" tree is displayed in the integration maintenance program.



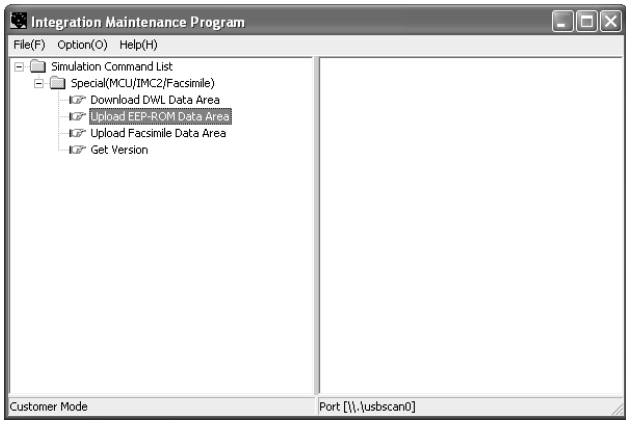
5) PC side: Boot the integration maintenance program. If "The copier is not turned on." is displayed on the lower side of the display, select "File" → "Reconnect" on the menu bar.



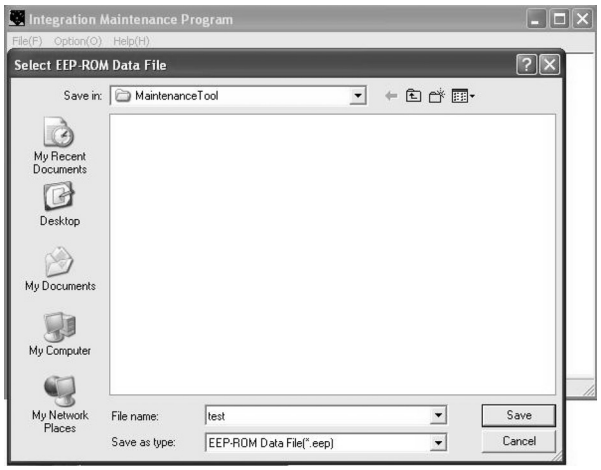
6) PC side: Check that trees are displayed on "Special (MCU/IMC2/Facsimile" in the integration maintenance program. (If trees are not displayed, check that the USB cable is connected and select "Reconnect" again in procedure 5).



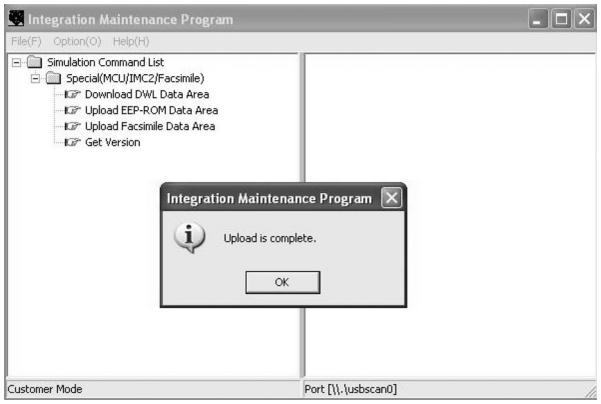
7) PC side: Double-click "Special (MCU/IMC2/Facsimile)" to develop its sub trees, and select "Upload EEPROM Data Area" in the sub trees.



8) PC side: Enter a desired file name, and select "Save."



9) PC side: When upload is completed, the complete message is displayed.



With the above procedure, the EEPROM data acquisition is completed.

Data acquired by the EEPROM data acquisition procedure are saved in a file with extension of .eep.

5. Installing procedures

<USB integration maintenance program installation>

Driver installation is made on plug-and-play.

<Installation on Windows XP>

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

   Check that "DOWNLOAD MODE" is displayed on the LCD of the operation panel. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)

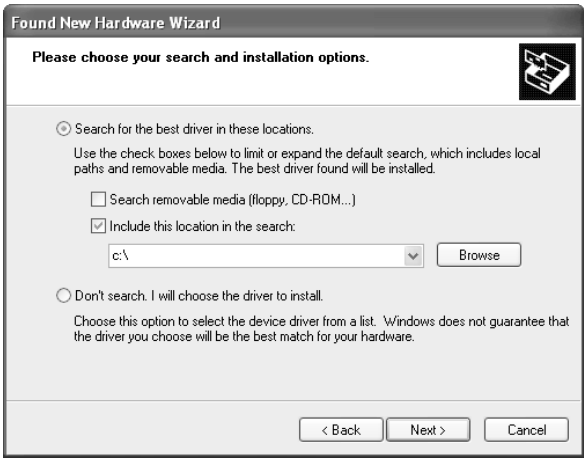
2) Connect the machine and the PC with a USB cable.

3) The following display is shown.

   Select [Install from a list or specific location] and press <Next> button.

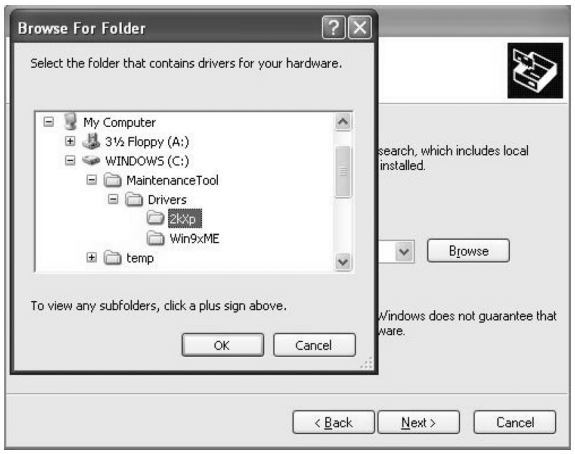
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
DOWNLOAD
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

4) Select [Include this location in the search;]. If the search location is not the folder which includes the maintenance tool driver (Mainte.inf), select <Browse>. If the search location is the folder which includes the maintenance tool driver, press <Next> button to go to procedure 7).

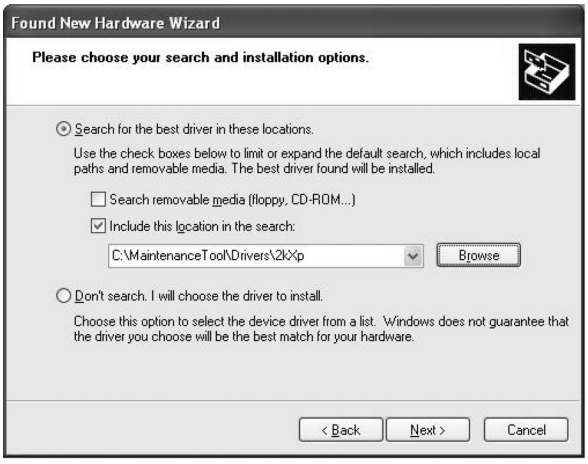

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
c:\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

5) Select the folder which includes the maintenance tool driver (Mainte.inf) and press <OK> button.

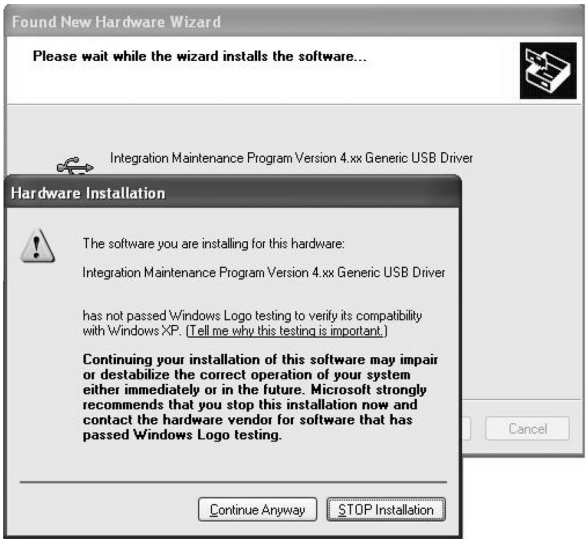
(Suppose that the driver is included in C:\MaintenanceTool\Drivers\2kXp folder.)



6) Check the path to the folder which includes the maintenance tool driver (Mainte.inf), and press <Next> button.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\MaintenanceTool\Drivers\2kXp
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

7) When the following display is shown, press [Continue Anyway] button.


Found New Hardware Wizard
Please wait while the wizard installs the software...
Integration Maintenance Program Version 4.xx Generic USB Driver
Hardware Installation
The software you are installing for this hardware:
Integration Maintenance Program Version 4.xx Generic USB Driver
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation
Cancel

8) When the following display is shown, installation is completed. Press <Finish> button.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Integration Maintenance Program Version 4.xx Generic USB Driver
Click Finish to close the wizard.
< Back
Finish
Cancel

With the above procedures, installation (on Windows XP) of the integration maintenance program is completed.

<Installation on Windows 2000>

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

   Check that "DOWNLOAD MODE" is displayed on the LCD of the operation panel. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)

2) Connect the machine and the PC with a USB cable.

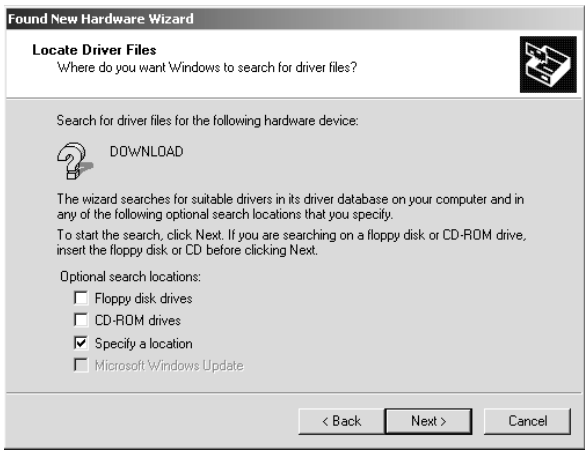
3) Check that the Found New Hardware Wizard is displayed, and press <Next> button.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

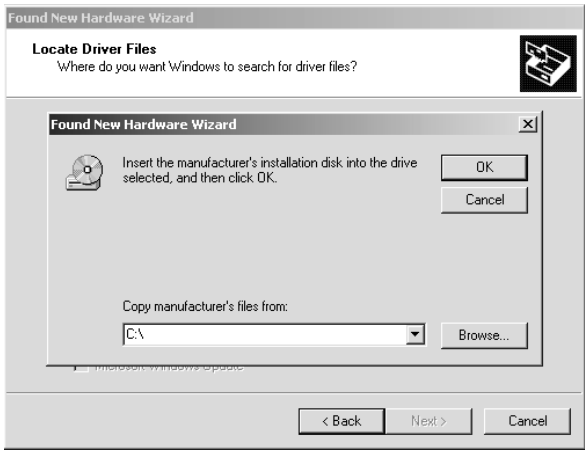
4) Select [Search for a suitable driver for my device] and press <Next> button.

Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
DOWNLOAD
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

5) Select [Specify a location] and press <Next> button.

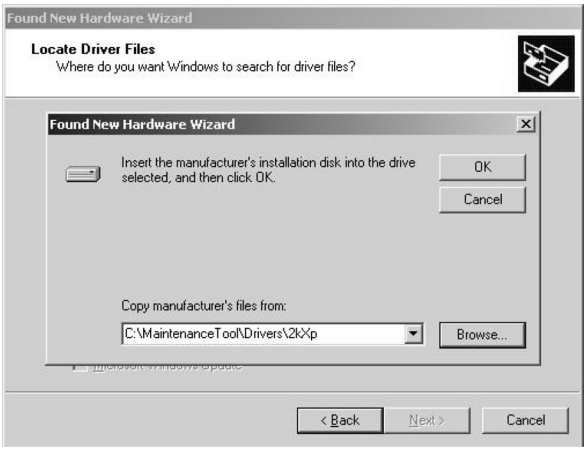

Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
DOWNLOAD
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

6) Select [Include this location in the search;]. If the search location is not the folder which includes the maintenance tool driver (Mainte.inf), select <Browse>. If the search location is the folder which includes the maintenance tool driver, press <Next> button to go to procedure 9).

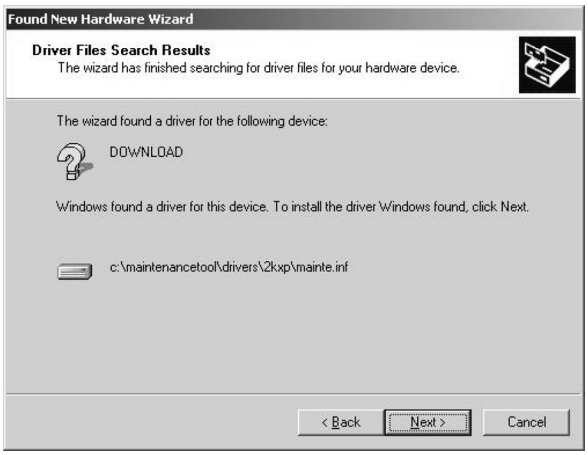


7) Specify the folder which includes the maintenance tool driver (Mainte.inf), and press <Open> button.

8) Check that the path to the folder which includes the maintenance tool driver (Mainte.inf) is displayed, and press <OK> button.
(Suppose that the maintenance tool driver is included in C:\MaintenanceTool\Drivers\2kXp folder.)



9) Press <Next> button to start installation.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
DOWNLOAD
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\maintenancetool\drivers\2kxp\mainte.inf
< Back
Next >
Cancel

10) When the following display is shown, installation is completed. Press <Finish> button.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
Integration Maintenance Program Version 4.xx
Generic USB Driver
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

11) Restart the PC.

With the above procedures, installation (on Windows 2000) of the integration maintenance program is completed.

<Installation on Windows Me>

1) Main unit side: Execute Test command No. 49-01 (Flash ROM program write mode).

   Check that "DOWNLOAD MODE" is displayed on the LCD of the operation panel. (Press and hold [CA] key and [DOWN] key (left key) together, and turn on the power simultaneously.)

2) Connect the machine and the PC with a USB cable.

3) The following display is shown on the PC side.

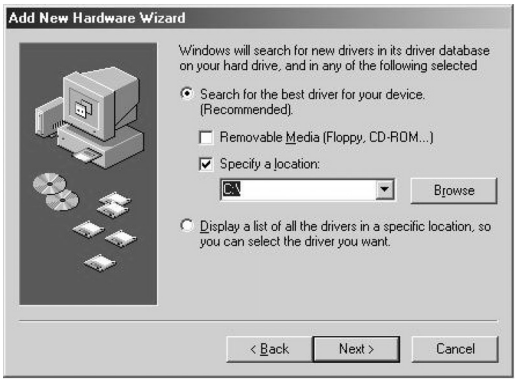
   Select [Specify the location of the driver], and press <Next> button.

Add New Hardware Wizard
Windows has found the following new hardware:
DOWNLOAD
Windows can automatically search for and install software that supports your hardware. If your hardware came with installation media, insert it now and click Next.
What would you like to do?
Automatic search for a better driver (Recommended)
Specify the location of the driver (Advanced)
< Back
Next >
Cancel

4) Select [Specify a location], specify the folder which includes the maintenance tool driver (Mainte.inf) as the search location, and press <Next> button.

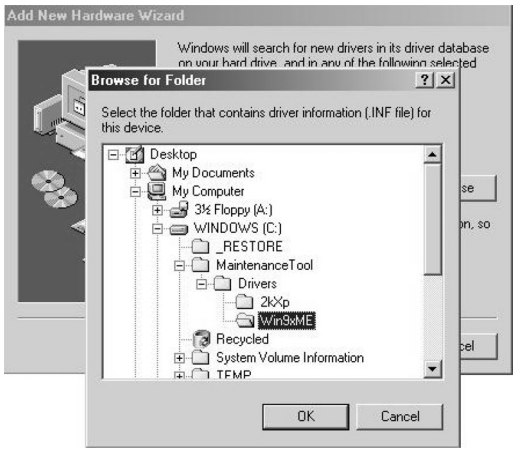
   If the search location does not include the maintenance tool driver (Mainte.inf), press <Browse> button to specify the folder which includes the maintenance tool driver (Mainte.inf).

   (Suppose that the maintenance tool driver is included in C:\MaintenanceTool\Drivers\Win9xMe folder.)


Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected
Search for the best driver for your device. (Recommended).
Removable Media (Floppy, CD-ROM...)
Specify a location:
Browse
Display a list of all the drivers in a specific location, so you can select the driver you want.
< Back
Next >
Cancel

5) Select the folder which includes maintenance tool driver (Mainte.inf), and press <OK> button.

   (Suppose that the driver is included in C:\MaintenanceTool\Drivers\Win9xMe folder.)



6) Check that the path to the folder which includes the maintenance tool driver (Mainte.inf) is displayed, and press <Next> button.

Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected
Search for the best driver for your device. (Recommended).
Removable Media (Floppy, CD-ROM...)
Specify a location:
C:\MaintenanceTool\Driver
Browse
Display a list of all the drivers in a specific location, so you can select the driver you want.
< Back
Next >
Cancel

7) When the following display is shown, installation is completed. Press <Finish> button.

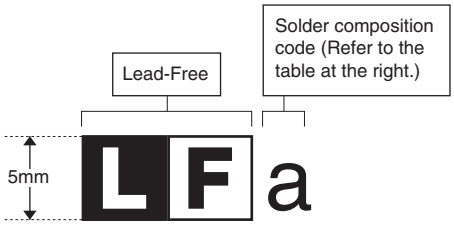
8) Restart the PC.

With the above procedures, installation (on Windows ME) of the integration maintenance program is completed.

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)
"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY
(MANGANESS DIOXIDE) MEMORY BACK-UP BATTERY
THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE
BATTERY FROM THE PRODUCT AND CONTACT YOUR
LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION
ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE
MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE)
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE
AGENCE ENVIRONNEMENTALE LOCALE POUR DES
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET
DE TRAITEMENT.

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